

A revised classification of the Asian and Pacific selenocephaline leafhoppers (Homoptera: Cicadellidae)

BRN 294725

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SYNOPSIS. The classification of the Asian and Pacific selenocephaline leafhoppers is revised. The 33 genera recognised here are placed in the following three tribes: Parabolobonini (formerly Paraboloboninae, a new senior synonym of Bhatiini, *syn. n.*) (28 genera), Selenocephalini (three genera) and Drabescini (two genera). Keys to these tribes and genera are given together with a world generic check-list. Seven new genera and eight new species are described; 31 new combinations, five generic and eight specific synonymies are proposed. The male genitalia of most species are figured; exceptions are those species of unknown identity or known only from females, and species previously figured or those from the Indian subcontinent. Habitus photographs of at least one species from each genus are provided. The following genera are transferred: *Hecaloidella* Osborn (from Deltocephalinae to Selenocephalini); *Sohipona* Ghauri & Viraktamath, *Shivipona* Ghauri & Viraktamath and *Cestius* Distant (from Selenocephalinae to Deltocephalinae); *Gessius* Distant (from Selenocephalinae to lassinae); *Divus* Distant, *Mysolis* Kirkaldy, *Omanella* Merino, *Roxasella* Merino and *Kutara* Distant (all from Selenocephalini to Parabolobonini).

INTRODUCTION

The present work was undertaken to document the little-known Asian and Pacific Selenocephalinae, both as an aid to their identification and to act as a basis for future studies. A further aim has been to test the classification proposed by Linnavuori & Al-Ne'amy (1983) which was based mainly on the African fauna. However, our conclusions should be considered preliminary, pending further work on the large number of undescribed taxa which we have seen but which, with a few exceptions, fall beyond the scope of the present work.

There have been several different opinions on the status and systematic position of the Selenocephalinae. Workers on the European cicadellid fauna have placed the single European genus *Selenocephalus* Germar in the Deltocephalinae, either in Selenocephalini (Ribaut, 1952) or Athysanini (Wagner, 1951 and Nast 1972). In the most comprehensive morphological study of the Cicadellidae Evans (1947) included 19 genera from all parts of the World within Selenocephalinae (as Selenocephalini), as a tribe of Iassinae. This arrangement was followed in Metcalf's (1966) catalogue, which included a further five genera, and was also followed in part in Hamilton's (1983) phylogenetic scheme. In a study of female genitalia and external characters of selected taxa, Hill (1969) included the Selenocephalinae (as Selenocephalini) in Deltocephalinae; seven out of the nine genera examined, of those listed by Evans (1947), together with three additional genera from North American, were included in the tribe. In a revision of the African fauna Linnavuori & Al-Ne'amy (1983) considered the Selenocephalinae as a 'distinctive' leafhopper subfamily. Seven tribes were recognized by these authors, three distributed throughout the Old World and four (three monobasic) restricted to Africa (Table 1). This arrangement was followed in the recent generic catalogue of Oman *et al.* (1990).

In the present work we have retained the Selenocephalinae but with some reservation as we have found no single diagnostic character (which is not present in some other subfamily) to define this group. The Selenocephalinae was originally erected without description to accommodate two Palaearctic genera, *Paramesus* Fieber (now included in Deltocephalinae) and *Selenocephalus*; both possess transverse striations on the fore-margin of the head, a feature used by most authors (but not all – see Distant, 1908: 290), to define the subfamily. In this context it is surprising that Linnavuori & Al-Ne'amy (1983) included *Ianeira* Linnavuori and *Hypacostemma* Linnavuori

Table 1. Distribution of Selenocephalinae tribes and numbers of genera and species from different geographical regions.

TRIBES	African		S. Europe		Asia and Pacific	
	Gen.	Spec.	Gen.	Spec.	Gen.	Spec.
Adamini	1	43				
Dwightiini	1	4				
Hypacostemmini	1	5				
Ianeirini	4	12				
Selenocephalini	11	68	1	20	3	6
Paraboloaponini	3	6	-	-	28	75
Drabescini	1	1	-	-	2	37

in the Selenocephalinae as both these lack transverse striations on the fore margin of the head, although they are present in an undescribed species of *Hypacostemma* (BMNH). This character, and the bifurcated striations (strigae) on the first valvulae, have together been used to define the Selenocephalinae (Linnavuori & Al-Ne'amy, 1983), but both features are present in some other subfamilies and neither is universal within the group (see above and below).

CLASSIFICATION OF ASIAN AND PACIFIC SELENOCEPHALINAE

Three of the tribes proposed by Linnavuori & Al-Ne'amy (1983) (Selenocephalini, Bhatiini and Drabescini) are considered applicable to the Asian and Pacific Selenocephalinae, although none of these is well defined and we consider Bhatiini a junior synonym of Paraboloaponini *syn. nov.* (see under tribes below). The majority of Asian and Pacific genera which we include in the subfamily have long antennae situated from midheight of the eyes (Fig. 7) to a point near the upper limit of the eyes (Fig. 8) in facial view. These same genera also have the antennal pits encroaching onto the clypeus (except *Nirvanguina*) and have the tentorial branches falcate (Fig. 21) or with a short dorsal branch (Fig. 20). These genera are assigned to either Drabescini or Paraboloaponini. Of the remaining Selenocephalinae, *Isaca* Walker, *Nacula* Distant and *Bhatia* Distant (*metcalfi*) are also included in Paraboloaponini despite their slightly lower antennae. *Hecaloidella* Osborn with shorter antennae and *Tambocerus* gen. n. and *Moluccasia* gen. n. with shorter and distinctly lower antennae,

are assigned to Selenocephalini (see under tribal comments below).

Although it is beyond the scope of the present work to examine in detail the African tribes we question the status of Adamini and Ianeirini: the former monobasic tribe is defined only on its male genitalia and the latter on characters of the face. The differences between these tribes and Selenocephalini are no greater than that between some genera of the Paraboloponini.

SUBFAMILY RELATIONSHIPS

Assuming that the Selenocephalinae was a monophyletic group Linnavuori & Al-Ne'amy (1983) considered that the head structure and other characters provided evidence of its close relationship to Penthimiinae and Acostemminae. In fact some characters noted by these authors apply only to certain selenocephaline tribes (in particular to Drabescini), or are variable within these tribes (see also 'Review of characters'). These characters are: fore margin of the head transversely striated (Penthimiinae, Acostemminae and most Selenocephalinae, except some Ianeirini, Hypacostemmini and Drabescini); antennae situated at or above midheight of eye in facial view (Penthimiinae, Drabescini, Dwightiini and most Paraboloponini); epistomal suture keeled (some Acostemminae and Drabescini); antennal ledge strong (Penthimiini, Drabescini); forewing veins and costal margin with whitish callosities (some Drabescini and Acostemminae); body with hair covering (Drabescini, Acostemminae and Dwightiini and some Paraboloponini); fore tibia dorsally flattened (Drabescini and some Penthimiinae, Acostemminae and Paraboloponini); first valvulae with strigate sculpture (Acostemminae, most Selenocephalinae and some Penthimiinae). To this list may be added the following shared characters: forewing with very narrow appendix and sometimes with reticulate venation (Acostemminae and Hypocostemmini); fore wing with broad appendix (Penthimiinae and Drabescini); clypeus rugose (Drabescini and some Acostemminae: *Telopetulus* Evans and *Eryapus* Evans sp.); clypellus medially ridged (Acostemminae and Drabescini). The inclusion of the African genus *Citorus* Stål in the Penthimiinae by Linnavuori & Al-Ne'amy (1983) was given as further evidence that Penthimiinae and Selenocephalinae were closely related, but it is not clear to us why this genus was excluded from the Selenocephalinae, since it was noted as having all

the features of this group. Similarly, *Jafar* Kirkaldy and *Thaumatoscopus* Kirkaldy have similar sculpture of the first valvulae to most Selenocephalinae (Hill, 1969) but, like most Penthimiinae, they differ from Selenocephalinae by their dorsal ocelli. The Acostemminae share some characters with some Selenocephalinae (as noted above) but, with the exception of *Telopetulus*, can be distinguished by the fusion of the male valve and pygophore and fused bases of the subgenital plates.

The similarity of Deltocephalinae and some Selenocephalinae is apparent both in external appearance and in the male genitalia, while differences that do exist are certainly no greater than between many of the deltocephaline tribes. The usually shagreen foremargin of the head, Y-shaped anterior tentorial branches and non-strigate sculpture pattern of the first valvulae in Deltocephalinae were given as a distinction between this subfamily and Selenocephalinae by Linnavuori & Al-Ne'amy (1983). However, the latter two characters are known for only a relatively few Deltocephalinae and in one of their examples, *Phlepsius* Fieber, we have found some bifurcate striations (strigae) similar to the dorsal sculpture in Fig. 70 and that figured by them for their selenocephaline genus *Maichewia*. In addition we have found some Selenocephalinae which lack this feature (see below). It is possible, therefore, that the Selenocephalinae may be either paraphyletic or belong within the Deltocephalinae, a group which is itself poorly defined. Further work is clearly required on the above groups to establish their relationships to one another.

BIOLOGY

Little is known about the biology of the Selenocephalinae except that they are generally arboreal and are frequently caught in light trap and tree fogging samples. One genus (*Loka* Linnavuori) occurs on grasses in Africa and is ant attended (Linnavuori & Al-Ne'amy, 1983: 58). The following taxa have been recorded with host plant data.

Paraboloponini: *Jamitettix guamensis* Metcalf on *Morinda citrifolia* (Rubiaceae); *Athysanopsis salicis* Matsumura on *Salix* (Salicaceae); *Welmaya nigrilinea* (Walker) on *Shorea* (Dipterocarpaceae); *Drabescoides nuchalis* on *Rosa rugosa* (Rosaceae), *Salix* and *Ulmus* (Ulmaceae); *Favintiga camphorae* (Matsumura) on *Cinnamomum camphora* (Lauraceae); *Dryadomorpha pallida* Kirkaldy on *Zizyphus jujuba* (Rhamnaceae); *D. metrosideri* on *Glochidion ramiflorum* (Euphorbiaceae), *Rapanea*

sp. (Myrsinaceae), *Reynoldsia* sp. (Araliaceae) and *Weinmannia parviflora* (Cunoniaceae); *Hecaloidella* sp. indet. on *Syzygium aromaticum* (Myrtaceae).

Drabescini: *Drabescus ogumae* on *Morus* (Moraceae), *D. ineffectus* on *Quercus mongolica* (Fagaceae), *D. nigrifemoratus* on *Lespedeza* sp. (Leguminosae).

Selenocephalini (African): *Gannia* Theron on *Gardenia* (Rubiaceae) and *Salsola esterhuyseniae* (Chenopodiaceae), *Adama* Dlabola on *Acacia* (Leguminosae), *Hypacostemma uniformis* (Distant) on *Laportea alatipes* (Urticaceae), *H. devia* Theron on *Pappea capensis* (Sapindaceae) and *Rhus* (Anacardiaceae),

MATERIAL EXAMINED

All available specimens from Asia and the Pacific, with transverse striations on the fore margin of the head and of a general Deltocephalinae-like appearance have been examined for possible inclusion in the Selenocephalinae. Of these, we consider *Iassus costalis* Walker, with non-strigate valvulae and very short and fine striations (almost shagreen) on the fore margin of the head, to belong to a new genus of Deltocephalinae: Athysanini (new placement). Types of most of the included taxa have also been examined. Exceptions are those of *Drabescus atratus* Kato and *D. fasciatus* Kato, the types of which are in the care of Kato's family and unavailable for study, those of *D. notatus* Schumacher, *Kutara nigrifasciata* Kuoh and *Jamitettix katonis* Matsumura, which could not be found and *D. pallidus* Matsumura (EIHU) which could not be sent because of its poor condition.

Although it was not our original intention to describe new species we consider it desirable to describe new species in *Kutara* Distant, *Bhatia* Distant and *Drabescus* Stål for misidentified species in the literature and in *Rengatella* gen. n. and *Isaca* to enable the recognition of their type species (see explanation under these genera).

For most species the male genitalia are figured, either from the holotype or a more suitable specimen or from a male specimen matched to a female type. Species not figured are those species of unknown identity or known only from the female and those species described and figured by Webb (1981). In addition, those species of *Carvaka* Distant, *Divus* Distant and *Megabyzus* Distant from the Indian sub-continent, currently being revised by Dr C. Viraktamath, are omitted.

DEPOSITORIES

AS	Academia Sinica, Beijing, China
AM	Australian Museum, Sydney, Australia
AAU	Anhui Agricultural University, Anhui, China
BAU	Beijing Agricultural University, Beijing, China
BMNH	The Natural History Museum, London, U.K.
BPBM	Bernice P. Bishop Museum, Honolulu, Hawaii, U.S.A.
CAS	California Academy of Sciences, California, U.S.A.
EIHU	Entomological Institute, Hokkaido University, Sapporo, Japan
IPE	Institut für Pflanzenschutzforschung der Akademie der Landwirtschaftswissen, Eberswalde, Germany
IZBT	Institute of Zoology and Botany, Tartu, Estonia
IZW	Institute of Zoology, Warszawa, Poland
HNHM	Hungarian Natural History Museum, Budapest, Hungary
MMB	Moravian Museum, Brno, Czechoslovakia
MNHN	Muséum National d'Histoire Naturelle, Paris, France
MRAC	Musée Royal de l'Afrique Centrale, Tervuren, Belgium
NAU	Northwestern Agricultural University, Shaanxi, China
NHMW	Naturhistorisches Museum, Vienna, Austria
NIAS	National Institute of Agro-Environmental Sciences, Tsukuba, Japan
NMNH	National Museum of Natural History, Washington, D.C., U.S.A.
NRS	Naturhistoriska Riksmuseet, Stockholm, Sweden
QM	Queensland Museum, Brisbane, Australia
RML	Rijksmuseum van Natuurlijke Historie, Leiden, Netherlands
SMTD	Staatliches Museum für Tierkunde, Dresden, Germany
SU	Saitama University, Urawa, Japan
UASB	University of Agricultural Sciences, Bangalore, India
ZIRAS	Zoological Institute of the Russian Academy of Sciences, St Petersburg, Russia
ZMB	Zoologisches Museum an der Humboldt-Universität zu Berlin, Germany

ACKNOWLEDGEMENTS. For the loan of material under their care we thank the following: Dr S. Takagi (EIHU), Dr C. Dietrich (formerly NMNH), Dr P. Lauterer (MMB), Dr Cai Ping (AAU), Dr Preston (BPBM); Dr W. Tomaszewska (IZW), Dr U. Aspöck (NHMW), Dr Per Lindskog (NHMV), Dr G.B. Monteith (QM), Dr J. van Tol (RML), Dr J. Deckert (ZMB), Dr T. Vásárhelyi (HNHM), Dr M. Hayashi (SU), Dr A. Taeger (IPE), Dr

N. Penny (CAS), Dr M. Moulds (AM), Prof. Yang Chikun (BAU).

We are grateful to Dr C. Viraktamath, for his helpful communications during the course of the work, and to Dr A. Neboiss for information on Francis Walker material in the Museum of Victoria.

We thank the British Council for supporting the senior author during the course of this work.

TAXONOMY

Subfamily Selenocephalinae Fieber

Selenocephalidae Fieber 1872: 10.

Selenocephalini, Evans, 1947: 217; Ribaut, 1952: 312; Evans, 1966: 244; Hill, 1969: 101; Hamilton, 1983: 21.

Selenocephalinae, Linnavuori & Al-Ne'amy, 1983: 19.

Diagnosis: Ocelli marginal; foremargin of the head rugose or transversely striated or carinate (exceptions: *Ianeira* and some *Hypacostemma* and *Drabescini*); first valvulae with dorsal strigate sculpture pattern (exceptions: *Lamia* Linnavuori, *Megabyzus* Distant, *Sombakidia* gen. n. and *Dryadomorpha* Kirkaldy).

REMARKS. See above for details on validity and classification of Selenocephalinae, its subfamily relationships and biology.

Review of characters

The following review of characters deals primarily with the Asian and Pacific Selenocephalinae fauna; that of the African fauna is covered in Linnavuori & Al-Ne'amy (1983).

Head: The head varies in length (Figs 1–4) while there is some evidence that the nymphs of short headed forms have longer heads (see remarks under Paraboloponini and *Drabescini*). In *Drabescoides* Kwon & Lee and most *Kutara* Distant species the vertex is elevated posteriorly. In *Dryadomorpha* Kirkaldy, *Parohinka* Webb and *Rhutelorbis* Webb the genae of the face are weakly incurved (noted in Fletcher & Stevens' (1988) key to Australian subfamilies and tribes) and visible dorsally in *Rhutelorbis*, as in Scaphytopiini (Deltoccephalinae). The fore margin is transversely striated, rugose (some *Bhatia*) or smooth (some *Drabescini*); sometimes one or more striae are stronger, forming carinae, with a sulcus in between. The vertex is smooth or longitudinally striate often with a subapical depression. Evans's (1947) key, couplet 33, indicated that the group had prominent

antennal ledges, although in his description of Selenocephalinae they were described as weak. This is an elusive character; when well developed and carinate (*Drabescini*) the ledges are easily discernable but in other Selenocephalinae they are much less obvious, or absent altogether e.g. *Hecaloidella*. In Paraboloponini (except *Nirvanguina*, Fig. 15) and *Drabescini* the high antennal pits encroach onto the clypeus (Figs 7–9). The anterior tentorial branches of the head have also been used to define some leafhopper groups but in the Selenocephalinae these are variable (Figs 17–21) although the falcate condition (Fig. 21) found in *Drabescini* and most Paraboloponini is distinctive. The antennae vary in length and position (see 'Classification') while the second segment (pedicel) is often dark brown in *Drabescini* and Paraboloponini. A keeled epistomal suture is present in some *Drabescus*.

Legs: Despite a very extensive study of the legs Linnavuori & Al-Ne'amy (1983) gave few significant diagnostic features except for the foretibia and hind femur in *Drabescini* (see below) and supernumerary spines on the forefemur of some genera (compare Figs 53 and 61). In addition we have found that some species of *Bhatia* and *Kutara* have the foretibia slightly flattened dorsally which is intermediate between the distinctly flattened foretibia in *Drabescini* and the more usual rounded condition. Contrary to Hamilton (1983) in Paraboloponini the apical spines of the hind tibia (Fig. 59) are irregular in length (as in Selenocephalini) and the paired apical setae of the hind femur are similar to Selenocephalini in position and in having prominent bases (Figs 55 and 60). In addition, the twisted hind tibia which characterized his Scarinae (Iassinae, in part, Penthimiinae and Selenocephalinae, in part) is variable in Selenocephalinae and also present in Deltoccephalinae. The setal formula on the fore tibia is 1+4 (Fig. 61) but in *Drabescoides* and most *Kutara* species it is 4+4 and on the hind femur usually 2+2+1 (Fig. 60) but sometimes 2+1+1 or 2+1.

Fore wings: The inner subapical cell of the fore wing is open in all genera except *Nirvanguina* (Fig. 28) and an outer subapical cell is present in all genera except *Lamia* (Fig. 27). The appendix varies from narrow (Fig. 23) to broad (Fig. 28). An incomplete m-cu cross vein and a cross vein between the claval veins is present in some *Kutara* species (Fig. 29).

Male genitalia: The male genitalia of Selenocephalinae are of the basic Deltoccephalinae type but some genera lack macrosetae on the subgenital plates or if present they are usually arranged irregularly rather than the regular

arrangement found in many Deltocephalinae. Adamini, some Paraboloponini and *Hecaloidella* (Selenocephalini) are similar to a few Deltocephalinae in having the aedeagus disassociated from the connective (Figs 104, 276) and *Sombakidia* (Paraboloponini) has a racket-shaped connective (Fig. 300) as in Paralimnini (Deltocephalinae). Several genera have the style apical process modified from the usual short curved tapered condition and in *Omanella* Merino and *Tengatka* gen. n. the inner or outer basal apophysis respectively is more elongate compared to other genera (Figs 260, 295). A feature of some *Drabescus* (Drabescini) and some Paraboloponini is a pair of long basal aedeagal processes (Fig. 122) and in *Hecaloidella* and some Paraboloponini a posterior extension of the connective occurs (Fig. 104). The articulation between the connective and aedeagus is obscure in Drabescini and *Drabescoides* (Fig. 216) and an additional sclerite is present between the two in some Paraboloponini (Fig. 114).

Female genitalia: We have examined the sculpture of the first valvulae for most Selenocephalinae from the study area and find it to be dorsally strigate in most taxa to a variable extent (see Figs 63, 65), except in *Lamia* where it is scale-like and in *Megabyzus*, *Sombakidia* and *Dryadomorpha*, where it is reticulate (Fig. 67). A few examples have both a reticulate and a more distal strigate pattern together with an intermediate pattern, similar to Acostemminae (Figs 68–70). Most of the genera examined have the second valvulae similar to *Bhatia* (Fig. 71) but differences are found in some genera (Figs 72–80).

GENERA REMOVED FROM THE SUBFAMILY

The following genera, appear under Selenocephalinae or Paraboloponinae in the generic catalogue of Oman, Knight & Nielson (1990) but belong to other subfamilies: *Cestius* Distant, belonging to Deltocephalinae, Opsiini (see Knight, 1973); *Gessius* Distant, belonging to Iassininae; *Sohipona* Ghauri & Viraktamath and *Shivipona* Ghauri & Viraktamath belonging to Deltocephalinae: Grypotini (see remarks under Paraboloponini); *Discocephalana* Metcalf (replacement name for *Discocephalus* Kirschbaum), a genus incertae sedis.

World generic check-list of subfamily Selenocephalinae

The taxa listed below are from Asia and the Pacific unless otherwise indicated (see also Table 1).

Tribe **Adamini** Linnavuori and Al-Ne'amy
Adama Dlabola (African)

subgenus *Krisnella* Linnavuori & Al-Ne'amy
subgenus *Paracostemma* Linnavuori & Al-Ne'amy
subgenus *Zinjella* Linnavuori & Al-Ne'amy

Tribe **Drabescini** Ishihara

Drabescus Stål (one African species)

Paradrabescus Kuoh **syn.n.**

Tylissus Stal **syn.n.**

subgenus *Ochrescus* Anufriev & Emeljanov **syn.n.**

subgenus *Leucostigmidium* Anufriev & Emeljanov **syn. n.**

Rengatella gen. n.

Tribe **Dwightiini** Linnavuori & Al-Nea'my

Dwightia Linnavuori & Al-Nea'my (African)

Tribe **Hypacostemmini** Linnavuori & Al-Nea'my

Hypacostemma Linnavuori (African)

Tribe **Ianeirini** Linnavuori

Abimwa Linnavuori (African)

Bardera Linnavuori & Al-Nea'my (African)

Ianeira Linnavuori (African)

Kanziko Linnavuori & Al-Nea'my (African)

Tribe **Paraboloponini** Ishihara

Bhatiini Linnavuori & Al-Nea'my **Syn.n.**

Athysanopsis Matsumura

Bhatia Distant

Melichariella Matsumura **syn. rev.**

Koreanopsis Kwon & Lee **syn. n.**

Carvaka Distant

Divus Distant (new placement from Selenocephalini)

Drabescoides Kwon & Lee

Dryadomorpha Kirkaldy (S. Palaearctic and Old World tropics)

Calotettix Osborn

Khamiria Dlabola

Osbornitettix Metcalf

Paganalia Distant

Rhombopsana Metcalf

Rhombopsis Haupt

Yakunopona Ishihara

Zizyphoides Distant

Favintiga Webb

Hybrasil Kirkaldy

Isaca Walker

Jamitettix Matsumura *incertae sedis*

Karoseefa Webb

Kutara Distant (new placement from Ianeirini)

Lamia Linnavuori

Megabyzus Distant (new placement from Deltocephalinae)

Mysolis Kirkaldy (new placement from Selenocephalini)

Norsia Walker

Norsiana Distant

Nakula Distant

Nirvanguina gen. n.

Oceanopona Linnavuori

Odmilla Linnavuori (African)

Omanella Merino (new placement from Selenocephalini)

Parabolopona Matsumura

- Parohinka** Webb
- Rhutelorbis** Webb
- Roxasella** Merino (new placement from Selenocephalini)
- Sombakidia** gen. n.
- Stenomiella** Evans (African)
- Tengatka** gen. n.
- Tenompoella** gen. n.
- Waigara** gen. n.
- Welmaya** gen. n.

Tribe **Selenocephalini** Fieber

- Angolaia** Linnavuori & Al-Ne'amy (African)
- Distantia** Signoret (African)
- Foso** Linnavuori & Al-Ne'amy (African)
- Hecaloidella** Osborn (new placement from Deltocephalinae)
- Ifeia** Linnavuori & Al-Nea'my (African)
- Kumba** Linnavuori & Al-Nea'my (African)
- Loka** Linnavuori & Al-Nea'my (African)
- Maichewia** Linnavuori & Al-Nea'my (African)
- Malendea** Linnavuori & Al-Nea'my (African)
- Moluccasia** gen. n.
- Sapoba** Linnavuori & Al-Neamy (African)
- Selenocephalus** Germar (S.W. Palaearctic)
- Levantottettix* Lindberg
- Tambocerus** gen. n.

Key to tribes of Asian and Pacific Selenocephalinae

- 1 Antennal ledge weak or absent; foretibia round or slightly flattened dorsally; appendix of forewing narrow to broad (Figs 22, 28) 2
- Antennal ledge strong; foretibia strongly flattened dorsally with margins sharp, sometimes expanded; appendix of forewing broad (Figs 25-26) **Drabescini**
- 2 Antennae short (distinctly shorter than half body length), located near middle to lower corner of eyes (Figs 5-6) **Selenocephalini**
- Antennae long (nearly half body length or more), located near middle to upper corner of eyes (Figs 7, 8, 15) **Paraboloaponini**

Tribe Selenocephalini Fieber

Diagnosis: Antennae short (distinctly shorter than half body length), located near middle to lower corner of eyes; clypeus strongly broadening upward; ocelli marginal.

REMARKS. This mainly African tribe, re-described by Linnavuori & Al-Ne'amy (1983), lacks any unique features; its monophyly is therefore uncertain. The three genera tentatively included here aptly demonstrate the heterogeneous nature of the tribe, i.e. *Tambocerus* has Y-shaped tentorial branches (Fig. 17) (as in Deltocephalinae), *Moluccasia* has reflexed forewing veins (Fig. 23),

flattened face and upturned vertex (Fig. 14) and *Hecaloidella* (new placement from Deltocephalinae) is without macrosetae on the subgenital plate (Fig. 100) (present in other genera of the tribe) and has the aedeagus disassociated from the connective (also found in Adamini and some Paraboloaponini).

In addition to the african species removed from *Selenocephalus* (Linnavuori & Al-Ne'amy, 1983) the following species, which appear under this genus in Metcalf's catalogue from Asia and the Pacific have subsequently been, or are here, transferred to other genera. Consequently, *Selenocephalus* is now confined to the south-west Palaearctic region.

- brunneus* Singh-Pruthi (see *Carvaka*)
- disparatus* Melichar (see *Tambocerus*)
- dolens* Melichar (see *Carvaka*)
- egregius* Stål (see *Roxasella*)
- guttatus* Walker (*Ledra*) *Glossocratus* Fieber (Deltocephalinae: Hecalini).
- marmoreus* Walker (see *Moluccasia*)
- notulus* Walker (see *Moluccasia*)
- taiwanus* Matsumura (*Selenocephalus*) (to *Goniagnathus* **comb. n.**) (Deltocephalinae: Goniagnathini).
- virescens* Distant (*Selenocephalus*) *Nephotettix* Matsumura (Deltocephalinae: Doraturini).
- viridipes* (Distant) (*Selenocephalus*) *Selenomorphus* Evans (Iassinae)

GENERA REMOVED FROM THE TRIBE

- Divus* (see Paraboloaponini)
- Mysolis* (see Paraboloaponini)
- Omanella* (see Paraboloaponini)
- Roxasella* (see Paraboloaponini)

Key to genera of Asian and Pacific Selenocephalini

- 1 Ocelli nearly touching corresponding eye (Fig. 10); clypeus slightly concave dorsally in profile (Fig. 10); frontoclypeal suture indistinct (Fig. 6). Subgenital plate without macrosetae (Fig. 100); connective with apex well extended posteriorly (Fig. 104); aedeagus situated dorsad of connective and linked to it by membrane (Fig. 104) **Hecaloidella**
- Ocelli approximately own diameter from corresponding eye (Fig. 1); clypeus flat (Fig. 14) or evenly curved dorsally in profile; frontoclypeal suture distinct (Fig. 5). Subgenital plate with macrosetae; connective without apical extension, attached to aedeagus at apex 2
- 2 Anterior margin of head upturned, clypeus flat in profile (Fig. 14); forewing with recurved veins in corium (Fig. 23); aedeagus with basal processes (Fig. 84) **Moluccasia**

- Anterior margin of head not upturned; clypeus slightly swollen; forewing without recurved veins in corium (Fig. 22); aedeagus without process (Fig. 93) **Tambocerus**

HECALOIDEA Osborn

Hecaloidella Osborn, 1934a: 173. Type species: *Hecaloidella nitida* Osborn, by original designation.

This genus is here transferred from Deltocephalinae: Scaphytopiini to Selenocephalinae based on the transversely striated fore margin of the head, shape of the anterior tentorium and the striated second valvulae. Its inclusion in the Selenocephalini is tentative (see remarks under classification above). Several new species from throughout the Pacific (BMNH) differ from *nitida* in having the antennae slightly lower rather than slightly higher than mid-height of the eyes in facial view. Characteristics of the genus are given in the above key.

DISTRIBUTION. Samoa (*nitida*) and throughout Pacific (new undescribed species).

SPECIES INCLUDED.

nitida Osborn, 1934a: 174, figs 8a–d. Holotype ♀, SAMOA (BMNH) examined. Figs 2, 6, 10, 24, 99–104, 474.

MOLUCCASIA gen. n.

Type species: *Selenocephalus marmoreus* Walker.

Yellow with brown irroration on vertex and pronotum; forewings with veins brown, costal veins edged with dark brown, subcostal region with alternating brown and yellow patches.

Head almost as wide as pronotum; anterior margin acute in profile, transversely striated; ocelli on margin, approximately equal to own diameter from eyes. Anterior tentorial branches unknown. Vertex roundly produced medially, midlength about 1.5 times as long as length next to eye, upturned apically. Face more or less straight in profile; transclypeal suture present; laterofrontal suture extended to lateral margin of corresponding ocellus; antennae located at level with middle of eyes in facial view, distinctly shorter than half body length. Pronotum with sides short, carinated. Forewing with apical cells short and broad; with additional recurved veins in subcostal region; appendix very narrow. Foretibia with, setal formula 1+4; hind femur with apical setal formula 2+2+1.

Male genitalia: Pygophore lobes with tooth at posterior margin and several macrosetae. Subgenital plate elongate, triangular shaped, with a row of stout macrosetae along basal outer margin and some fine setae on outer margin. Style with lateral basal apophysis produced; apical process short and stout, tapered to apex, strongly curved, subapical lobe long with several fine setae. Connective Y-shaped, arms short, widely separated. Aedeagus with shaft robust, curved dorsally and tapered to broadly rounded apex, the latter laterally compressed anteriorly and with a flange on each side posteriorly, pair of long basal processes from anterior margin; gonopore large, apical on posterior surface; basal apodeme short.

Female genitalia: First valvulae with strigate sculpture dorsally. Second valvulae similar to *Bhatia* (Fig. 71).

DISTRIBUTION. Indonesia (Morotai I. Sula I. and Misool I.).

REMARKS. Distinguishing characters of this genus are given in the above key. The two included species may be conspecific but both available specimens (syntypes) of *marmorea* 'Sula' and 'N. Gui' are without head and the single specimen (syntype) of *notula* is a female. Another syntype recorded from 'Morty' (Morotai I.) has not been seen.

SPECIES INCLUDED.

marmorea (Walker, 1870: 325–326) (*Selenocephalus*). LECTOTYPE ♂, INDONESIA: (Sula I.) (BMNH), here designated (examined). **Comb. n.** Figs 23, 83–88.
notula (Walker, 1870: 326) (*Selenocephalus*). LECTOTYPE ♀ INDONESIA: Misool I. (*Wallace*) (BMNH), here designated (examined). **Comb. n.** Figs 13, 14, 471.

TAMBOCERUS gen. n.

Type species: *Selenocephalus disparatus* Melichar.

Yellow with or without brown irroration. Head narrower than or nearly equal in width to pronotum; anterior margin rounded to face in profile, finely transversely striated; ocelli on margin, approximately equal to own diameter from corresponding eye. Anterior tentorial branches Y-shaped. Vertex slightly produced medially, slightly sulcate subapically; smooth with some indistinct longitudinal striations. Face with transclypeal suture distinct; laterofrontal suture extended to lateral margin of corresponding ocellus; antennae situated slightly below midheight of eyes in facial view, moderately long, clearly

shorter than half body length. Pronotum smooth, sides short and carinated. Fore wing with venation as in Fig. 22, sometimes with white wax patch in middle of costal margin. Fore tibia with dorsal surface rounded, setal formula 5+5(6) or 1+5; hind femur with apical setal formula 2+2+1.

Male genitalia: Pygophore lobes with distal small sclerotized teeth. Subgenital plate elongate triangular shaped, with a row of macrosetae, slightly irregular in basal part of plate. Style with apical process short, tapered to apex. Connective with stem elongate, arms short. Aedeagus with shaft elongate, cylindrical, curved dorsally and tapered to apex, with lateral teeth, gonopore apical on posterior surface; basal apodeme moderately long.

Female genitalia: First valvulae with strigate sculpture dorsally. Second valvulae similar to *Bhatia* (Fig. 71).

DISTRIBUTION. Sri Lanka.

REMARKS. The taxonomic position of this genus is uncertain. It is tentatively included in the Selenocephalinae based on the transversely striated foremargin of the head and strigated first valvulae. Its distinctly Y-shaped tentorium (Fig. 17) are similar to those found in some Dectocephalinae. It can be distinguished in the male genitalia by the distal small sclerotized teeth on the pygophore lobes and by the lateral teeth of the aedeagal shaft.

Melichar described *disparatus* from several specimens from the following localities in Sri Lanka: Pattipola, Kandy, Negomba and Paradna, the latter specimen(s) recorded from 'Museum Budapest'. In addition, he noted three damaged examples in the Berlin Museum. We have examined the following specimens which we consider to be syntypes: 7 males, 1 female, 'Pattipola, 2000m' 'Ceylon/Biro 1902' (NHMH, MMB (1)); 1 female 'Kandy/Ceylon Horn' (NHMH); 1 female, 'Negomba/Ceylon Horn' and 1 female, 'Paradna/Ceylon Horn' (IPE); 3 females 'Ceylon/Nicter' (ZMB). This type series represents five different species, four of the present genus and one of *Carvaka* Distant. We have selected one of the above males from Pattipola (NHMH) as the lectotype. This specimen bears a type label which may be contemporary with the date of publication of *disparatus* and is probably the specimen borrowed and figured by Distant (1908: 292). Two paralectotypes with the same data (male and female) (NHMH) also belong to this species.

The specimens examined and figured by Distant (1908) as *Phlepsius divaricatus* Melichar (BMNH) belong to *disparatus* and new species of this genus. The specimens examined and figured of *Carvaka*

thoracica Distant by Pruthi (1934: 81) almost certainly belong to this genus. The specimen examined and figured by Datta (1973: 442 and 1988: 224) as *disparatus* is a new species of this genus.

SPECIES INCLUDED.

disparatus (Melichar, 1903:169) (*Selenocephalus*), LECTOTYPE ♂, SRI LANKA Biro', Pattipola, 2000m., 1902 (NHMH) here designated, examined. **Comb. n.** Figs 1, 5, 17, 89–93, 472.

plumbeus (Distant, 1908:347) (*Phlepsius*), HOLOTYPE ♂, SRI LANKA (BHNM) here designated, examined. **Comb. n.** Figs 22, 94–98, 473.

Tribe Paraboloponini Ishihara

Paraboloponidae Ishihara, 1953: 5

Paraboloponini Linnavuori, 1960: 299

Paraboloponinae Eyles & Linnavuori, 1974: 39; Linnavuori, 1978: 457; Webb, 1981: 41.

Bhatiini Linnavuori & Al-Ne'amy, 1983: 21–22. **Syn. n.**

Diagnosis: Antennae long (nearly half body length or more), usually located towards upper corner of eye; antennal pit encroaching onto clypeus (exception: *Nirvanguina*); tentorial branches T-shaped or falcate.

REMARKS. This group has been described by Linnavuori (1978), Webb (1981) and Linnavuori & Al-Ne'amy (1983), the latter as Bhatiini. The above diagnosis is far from satisfactory because of some exceptions and because the African genus *Acastroma* Linnavuori with these characters and the fore-margin of the head carinate is placed in the Dectocephalinae, Athysanini. This genus was excluded from the Selenocephalinae by Linnavuori & Al-Ne'amy (1983: 17) because of its non-strigate sculpture pattern of the first valvulae but as noted above the sculpture in Selenocephalinae is more variable than these authors thought. The more ventral position of the antennae (and ocelli) in *Isaca* (Fig. 9), *Nakula* and *Bhatia* (*metcalfi*), compared to other genera, is here considered a secondary development resulting, at least in *Nakula*, from a shortening and flexing of the head downwards.

The earlier treatment of the Paraboloponini as Paraboloponinae (Webb, 1981) followed Linnavuori (1978), who included genera with 'strongly produced triangular-shaped heads' combined with long, highly positioned antennae. This head shape (Figs 4, 8) may have influenced Linnavuori & Al-Ne'amy (1983) to omit the group

from the Selenocephalinae whilst erecting the new tribe Bhatiini (here considered a junior synonym of Paraboloponini), for genera with shorter heads (Fig. 3). Evidence for this comes from their comment (1983: 21) that the 'nymph' figured by Evans (1947: 218) of *Kutara productus* (Evans) was mis-associated as it had a much longer head than the adult, and that it probably belonged to a genus of Paraboloponinae. However, this 'nymph' (Figs 500–501) proves to be one of two exuviae, each associated with an adult *K. productus* (Fig. 499) and therefore quite possibly of this genus, which they placed in Bhatiini. Our examination of Paraboloponini from Asia and the Pacific indicates that head length alone is an unreliable indicator of relationship in this group. In addition, we cannot agree with the exclusion of the Paraboloponini from the Selenocephalinae based on certain leg characters (Hamilton, 1983), because we can find no significant differences in the legs between this and other selenocephaline tribes (see 'Review of Characters').

GENERA REMOVED FROM THE TRIBE.

Sohipona Ghauri & Viraktamath and *Shivapona* Ghauri & Viraktamath are excluded from the Paraboloponini and tentatively placed in the Grypotini (Deltocephalinae). Although differing from *Grypota* in having long antennae and transverse striations on the fore margin of the head (as in Paraboloponini) they are similar to this genus in the shape of the clypellus and in having non-strigate first valvulae and platellae on the hind first tarsi.

Key to genera of Asian and Pacific Paraboloponini

Note: Due to a paucity of external and female characters it is not possible to distinguish the females of several genera (couplets 13–21). Also for this reason the genus *Mysolis*, known only from the female, is omitted from the key.

- 1 Hind femur with 2+2+1 apical setae (Fig. 60) 2
 - Hind femur with 2+1+1 or 2+1 apical setae 22
- 2 Head, thorax and margins of forewing marked with orange (Plate 1, Figs 7–11) 3
 - Not marked as above 5
- 3 Vertex very short (Plate 1, Fig. 7); antennae below midheight of eye in facial view
Nakula (p. 17)
 - Vertex and antennae not as above 4
- 4 Inner two apical cells of forewing small (Fig. 30); subgenital plate with macrosetae; connective extended posteriorly; aedeagus situated dorsad of connective, connected to midlength of latter by membrane *Tenompoella* (p. 21)
 - Inner two apical cells of forewing large; male genitalia not as above *Roxasella* (in part) (p. 19)
- 5 Laterofrontal sutures on face absent (Fig. 8); connective extended posteriorly with aedeagus fused or attached by membrane to its midlength 6
 - Laterofrontal sutures on face present (Fig. 7); connective and aedeagus not as above 7
- 6 Head and thorax yellow with brown spots (Figs 493–494); head of near uniform length, foremargin angularly rounded with three to five carinae; vertex longitudinally striated; aedeagus fused to midlength of connective; ovipositor extended to apex of forewings or beyond; valvulae very long and narrow, second valvulae with fine teeth at apex (Fig. 64, 76) *Omanella* (p. 18)
 - Head and thorax without brown spots; head produced medially (Fig. 4); foremargin with two carinae, foliaceous (Fig. 12); vertex shagreen; aedeagus connected to midlength of connective by membrane; ovipositor not as above, valvulae moderately long and narrow, second valvulae with very fine teeth, extended over distal one-quarter of dorsal margin (Fig. 75) *Parabolopona* (p. 18)
- 7 Laterofrontal sutures of face extended one-half distance to corresponding ocellus; male genitalia with valve long, subgenital plate short, connective racket-shaped; second valvulae tapered from midlength to apex without teeth (Fig. 78) *Sombakidia* (p. 20)
 - Laterofrontal sutures of face extended to corresponding ocellus; male and female genitalia not as above 8
- 8 Foretibia with 2+4, 4+4 or more dorsal spines; vertex usually elevated posteriorly; forewing with a crossvein usually present between claval veins (Fig. 29); aedeagal shaft produced apically beyond anterior gonopore; connective angled at midlength 9
 - Foretibia with 1+4 dorsal spines; vertex not elevated posteriorly; forewings without crossvein between claval veins 10
- 9 Stem of connective greatly expanded laterally (Fig. 217) *Drabescoides* (p. 13)
 - Stem of connective not greatly expanded laterally *Kutara* (p. 15)
- 10 Distinctly marked with dark brown and yellow (Plate 1, Fig. 14); outer subapical cell of forewing extended to or beyond apex of medial subapical cell (arrowed in Fig. 46) *Isaca* (p. 14)
 - Markings and outer subapical cell not as above ... 11
- 11 Outer subapical cell of forewing extended to costal

- margin (Fig. 27) *Lamia* (p. 16)
- Outer subapical cell of forewing not extended to costal margin 12
- 12 Forewing with inner apical cell closed, fourth apical cell small, appendix broad (Fig. 28). . *Nirvanguina* (p. 17)
- Forewing not as above 13
- 13 Style with lateral apophysis extended (Fig. 295) *Tengatka* (p. 20)
- Style with lateral apophysis short 14
- 14 Aedeagus with a process arising basally from posterior surface, sometimes process arising from between aedeagus and connective (Fig. 167) or from connective (Fig. 158) 15
- Aedeagus not as above 17
- 15 Aedeagus with pair of laterobasal processes ... *Divus* (p. 13)
- Aedeagus without a pair of laterobasal processes . 16
- 16 Aedeagus with apical processes and basal apodeme (Fig. 158) *Carvaka* (in part) (p. 13)
- Aedeagus without apical processes or basal apodeme (Fig. 167) *Hybrasil* (p. 14)
- 17 Aedeagus with a pair of laterobasal processes 18
- Aedeagus without a pair of laterobasal processes . 19
- 18 Pygophore lobe with ledge along posterior margin (Fig. 145), subgenital plate with inner apical half constricted (Fig. 147) *Athysanopsis* (p. 11)
- Pygophore lobe with ledge, if present, extended diagonally across lobe to its ventroposterior corner (Fig. 105); subgenital plate with inner side nearly straight *Bhatia* (p. 11)
- 19 Stem of connective bifurcate (Fig. 289); aedeagal shaft filamentous (Fig. 286) *Welmaya* (p. 22)
- Connective and aedeagus not as above 20
- 20 Subgenital plate with a row of stout macrosetae *Megabyzus* (p. 17)
- Subgenital plate without stout macrosetae 21
- 21 Connective short (Fig. 235) *Roxasella* (in part) (p. 19)
- Connective moderately long *Carvaka* (in part) (p. 13) 22
- 22 Hind femur knee spines 2+1 *Oceanopona* (p. 18)
- Hind femur knee spines 2+1+1 23
- 23 Clypellus with sides parallel *Karoseefa* (p. 15)
- Clypellus expanded apically 24
- 24 Foremargin of head broadly rounded in dorsal and lateral view; vertex yellow with a pair of brown spots posteriorly (Fig. 491) *Waigara* (p. 21)
- Foremargin of head acutely rounded in dorsal and lateral view; vertex without posterior spots 25
- 25 Aedeagus with a pair of basal processes; female pregenital sternite with midlength approximately twice length of sides *Favintiga* (p. 14)
- Aedeagus and female pregenital sternite not as above 26
- 26 Male 27
- Female 29
- 27 Aedeagal processes symmetrical 28
- Aedeagal processes asymmetrical *Parohinka* (p. 19)
- 28 Lateral margin of face visible dorsally; pygophore without an internal ledge *Rhutelorbus* (p. 19) 29
- Lateral margin of face not visible dorsally; pygophore with an internal ledge *Dryadomorpha* (p. 13)
- 29 Vertex usually with pale patches; posterior margin of pregenital sternite V-shaped or U-shaped with posterolateral corners produced 30
- Vertex without pale patches; posterior margin of pregenital sternite with a small protuberance each side of midline *Dryadomorpha* (p. 13)
- 30 Lateral margin of face visible dorsally *Rhutelorbus* (p. 19)
- Lateral margin of face not visible dorsally *Parohinka* (p. 19)

ATHYSANOPSIS Matsumura

Athysanopsis Matsumura, 1914: 184; Ishihara, 1954: 244–245. Type species: *Athysanopsis salicis* Matsumura, by original designation.

This genus, containing two species, is similar to *Bhatia* but differs in marking and in the male genitalia as indicated in the above key. The dorsal surface of the foretibia is slightly flattened in the single species examined as in some species of *Bhatia*.

DISTRIBUTION. Japan, China.

SPECIES INCLUDED.

salicis Matsumura, 1905: [64], plate 21, fig. 19. LECTOTYPE ♂, JAPAN: Takasago, ix,

remounted and labelled, here designated, from a series of 12 syntypes (examined) (EIHU). Plate 1, Fig. 6; Figs 145–150.

katoï Metcalf, 1966: 96 (*Idiocerus*) **nom. n.** for *Idiocerus quadripunctatus* Kato, 1933a: 8, fig. 6; Kato 1933b: plate 19, fig. 5 (*Athysanopsis*); Metcalf 1967: 421 (*Athysanopsis quadripunctata* Kato 1933b, n.sp. error). Holotype ♀, CHINA (Kato coll.) (not examined).

SPECIES REMOVED FROM THE GENUS.

fasciata Kato (see *Drabescus ineffectus*).

BHATIA Distant

Bhatia, Distant, 1908: 357. Type species: *Eutettix? olivacea* Melichar, by original designation.

Melichariella Matsumura, 1914: 236–237; Ishihara, 1954: 243–245; Linnavuori, 1960: 36 (synonymized with *Bhatia*); 1983: 23 (stat. rev.). Type species: *Melichariella satsumensis* Matsumura, by original designation. **Syn. rev.**

Koreanopsis Kwon & Lee, 1979: 50. Type species: *Koreanopsis koreana* Kwon & Lee, by monotypy. **Syn.n.**

This genus, containing eight species, was originally described from a misidentified type species (Webb, 1994); this is described below as a new species. In addition, Linnavuori & Al-Ne'amy's (1983) figured specimen and Ishihara's (1961) figure of the supposed type species is in fact *Omanella johnsoni*.

Bhatia is similar to *Athysanopsis* (see under that genus). Several species-groups are apparent but because the composition of these groups is inconsistent i.e. the same species occurs in different groups, and until the large number of new species seen are described, we hesitate to describe new genera for these groups. As the type species of *Melichariella* and *Koreanopsis* fall within these groups we are synonymizing these genera with *Bhatia*. The following differences between species-groups apply: foremargin of the head transversely wrinkled rather than striated, vertex shorter medially than next to eye and antennae slightly lower than midheight of eye (*metcalfi*); foretibia slightly flattened or scored dorsally rather than rounded (*metcalfi*, *guamensis*, *lituriceps* and *javana*); style apical process expanded (*javana*) (Fig. 135); style with an apical extension (arrowed in Fig. 109) and pygophore with an internal posterior ledge (Fig. 105) (*olivacea*, *satsumensis* and *distanti*); an additional sclerite between the connective and aedeagus (Fig. 114) (*satsumensis*, *distanti*, *metcalfi* and *guamensis*), spiralled internal structure of the aedeagal processes (Fig. 114) (*distanti* and *koreana*).

It is possible that *Jamitettix* is a synonym of *Bhatia* (Linnavuori, 1960a: 324). Both *metcalfi* and *guamensis* were originally described in *Jamitettix* and in the original description of *guamensis* it was compared with the type species of *Jamitettix* (*kotonis*). But as the holotype of *kotonis* is lost the identity of this genus and species remains uncertain.

There is some confusion regarding the holotype of *metcalfi*. A specimen labelled 'type' from NMNH (the originally stated depository) has data consistent with the originally published data of a paratype. In this case it may not be possible to identify the holotype as three other paratypes (topotypic) are listed. One of these with matching holotype data has been examined and figured (BPBM).

DISTRIBUTION. Widespread in southern Asia and the Pacific.

SPECIES INCLUDED.

distanti sp. n. for *Bhatia olivacea* (Melichar) Distant, 1908: 357, fig. 227, misidentification.

guamensis (Metcalf, 1946: 119–120, figs 10a–e) (*Jamitettix*); Linnavuori, 1960a: 325–326, figs 46a–b. Holotype ♂ (originally stated as ♀), GUAM (BPBM), (examined). **Comb. n.** Figs 121–127, 489.

javana (Melichar, 1914: 132) (*Kutara*) LECTOTYPE ♂, JAVA: Batavia, xii.1908 (*E. Jacobson*) (MMB) here designated (examined). **Comb. n.** Figs 134–138, 485.

koreana Kwon & Lee, 1979: 50, figs 1–5. Holotype ♂, KOREA (KNU) (not examined). Figs 139–144, 490.

lituriceps (Walker, 1869: 323) (*Iassus*). LECTOTYPE ♀, SULA IS. (BMNH) here designated (examined). **Comb. n.** Fig. 487.

metcalfi (Linnavuori, 1960a: 326, figs 46c–e) (*Jamitettix*). Holotype ♂, CAROLINE IS. (NMNH ?) (not examined, see below) **Comb. n.** Figs 117–120, 486.

olivacea (Melichar, 1903: 191–192, Tab. 6, fig 1, a–c) (*Eutettix?*); Distant, 1908: 357 (*Bhatia*). Holotype ♀, SRI LANKA (MMB) (examined). Figs 3, 7, 37, 62, 63, 71, 105–111, 483.

satsumensis (Matsumura, 1914: 237–238, fig. 12) (*Melichariella*). LECTOTYPE ♂, JAPAN (EIHU) here designated (examined). **Comb. rev.** Figs 128–133, 488.

SPECIES REMOVED FROM THE GENUS.

boninensis Matsumura (see *Waigara*)

formosana Matsumura (see *Carvaka*)

***Bhatia distanti* sp. n.**

(Figs 112–116, 484)

Bhatia olivacea (Melichar) Distant, 1908: 357, fig. 227, misidentification.

Length: ♂, 6.0mm. Green to brownish yellow; a small brown spot posteriorly on vertex between midline and eye and a few similar spots anteriorly on pronotum; forewings with a brown spot posteriorly on claval veins at wing margin and a similar spot at posterior angle of clavus.

Male genitalia similar to *olivacea* but apical process of style broader, an additional sclerite present between aedeagus and connective and the distinctly different aedeagus (compare Figs 111 and 114).

DISTRIBUTION. Sri Lanka.

REMARKS. In addition to the characters noted above *distanti* differs from *olivacea* in its slightly narrower vertex (compare Figs 483 and 484).

MATERIAL EXAMINED. Holotype ♂, Sri Lanka: Peradeniya, iv.1905 (BMNH).

Paratypes. Sri Lanka: 1 (abdomen missing) Peradeniya, xi.1901; 1 (abdomen missing), Kalawewa, 12–14.iv.1953 (BMNH).

CARVAKA Distant

Carvaka Distant, 1918: 40. Type species: *Carvaka picturata* Distant, by original designation.

In addition to the five species of this genus from the Indian subcontinent, currently being revised by Dr C.A. Viraktamath, we also include *formosana* from Taiwan and *contempta* from Australia.

The genus is very difficult to diagnose because the male genitalia are variable and there are only slight differences distinguishing it from *Divus* and *Hybrasil* (see above key). Its retention as a separate genus has required the inclusion of *contempta* (transferred from *Hybrasil*) although the overall appearance of this species and its Australian distribution, compared to the Oriental distribution of the remaining species of *Carvaka*, might suggest otherwise. Also, the dark brown head of *contempta* with a yellow transverse band anteriorly resembles *Hybrasil*, as does the connection between the aedeagal shaft and basal process (arrowed in Figs 158, 163, 167). This process is either articulated with the connective (*Carvaka* including *contempta*), articulated with the aedeagal shaft (*Carvaka*, in part and *Hybrasil*) or absent (*Carvaka*, in part).

In addition to the female type of *contemptus* we

have examined a few additional specimens of this species (of both sexes) from Australia (BMNH).

DISTRIBUTION. India, Sri Lanka, Taiwan, Australia.

SPECIES INCLUDED.

brunneus Singh-Pruthi, 1930: 37, pl. 3, figs 5, 5a (*Selenocephalus*). Holotype ♀, INDIA (IM) (not examined).

contempta (Kirkaldy, 1906: 332) (*Exitianus*); Ross, 1968: 22 (*Hybrasil*). Syntypes ♀, AUSTRALIA (BPBM) (examined). **Comb. n.** Figs 33, 157–160, 511.

eurytus (Kirkaldy, 1907: 54) (*Exitianus*). Syntype ♀, AUSTRALIA (BPBM) (examined). Synonymised by Ross, 1968: 22.

fulvida (Evans, 1966: 244–245, fig. 32i) (*Carvaka*). Holotype ♀, AUSTRALIA (AM) (examined). **Syn. n.**

dolens (Melichar, 1903: 170) (*Selenocephalus*). LECTOTYPE ♀, SRI LANKA (*Nictner*); here designated (examined) (ZMB). **Comb. n.**

formosana (Matsumura, 1914: 238–239) (*Melichariella*). LECTOTYPE ♂, TAIWAN: 30.iv.07 (EIHU) here designated (examined). **Comb. n.** Figs 32, 151–156, 510.

modesta Distant, 1918: 41. Syntypes 4♂ 4♀, INDIA (BMNH) (examined). Figs 31, 509.

ochrophara Distant, 1918: 41–42. Syntypes 2♀, INDIA (BMNH) (examined). Fig. 506.

picturata Distant, 1918: 40–41, fig. 21. Syntypes 2♀ 1 sex unknown, INDIA (BMNH) (examined). Fig. 507.

thoracica Distant, 1918: 41. Syntypes 1♂, 1♀, INDIA (BMNH) (examined). Fig. 508.

DIVUS Distant

Divus Distant, 1908: 365. Type species: *Divus bipunctatus* Melichar, by original designation.

This genus, currently known from a single species, is being revised by Dr C. Viraktamath. It can be distinguished from the similar *Carvaka* by the paired laterobasal aedeagal processes.

DISTRIBUTION. India, Sri Lanka.

SPECIES INCLUDED.

bipunctatus (Melichar, 1903: 192,) (*Eutettix*). Holotype ♂, SRI LANKA (not examined). Fig. 482.

DRABESCOIDES Kwon & Lee *stat. rev.*

Drabescoides, Kwon & Lee, 1979: 53. Type species: *Selenocephalus nuchalis* Jacobi, by original designation.

Drabescus (*Drabescoides*): Anufriev & Emeljanaov, 1988: 174.

This monobasic genus, which is identical to *Kutara* externally, can be recognized by its very distinctive male genitalia (see Figs 208–217).

DISTRIBUTION. Korea, China, Russia, Japan?.

SPECIES INCLUDED.

nuchalis (Jacobi, 1943: 30, fig. 9) (*Selenocephalus*); Kwon & Lee, 1979: 53, figs 3–6. Lectotype ♀, CHINA (SMT), designated ? by Anufriev, 1979: 166 (examined). Figs 208–217, 504.

Kutara brunnescens Distant, Vilbaste, 1968: 118, figs 96a–i, misidentification.

Drabescus striatus Anufriev, 1971: 61. Holotype ♂, RUSSIA (Z–I) (not examined). Synonymized by Anufriev, 1979: 166.

DRYADOMORPHA Kirkaldy

Dryadomorpha Kirkaldy, 1906: 335; Linnavuori, 1960: 42; Webb 1981: 49–50. Type species: *Dryadomorpha pallida* Kirkaldy, by monotypy.

(See check-list for list of synonyms and Webb, 1981, for full citation).

Five of the eight species of *Dryadomorpha* occur in the study area. The genus, revised by Webb (1981), can be distinguished by its usually acutely produced head (see Plate 1, Fig. 18), internal male pygophore ledge and aedeagus with a pair of apical dorsally directed processes. Unlike most genera of the subfamily it has reticulate rather than strigate sculpture on the first valvulae (see 'Review of characters').

DISTRIBUTION. Ethiopian, southern Palaearctic and Austro-Oriental region.

SPECIES INCLUDED.

anacryon Linnavuori, 1978b: 462, figs 4a–b. Holotype ♂, ZAIRE (MRAC) (not examined).

bruneocephala Webb, 1981: 57–58, figs 1–5. Holotype ♂, CENTRAL AFRICAN REPUBLIC (MNHN).

metrosideri (Osborn, 1934b: 247–248) (*Calotettix*); Webb, 1981: 53–54, figs 57–60. Holotype ♀, MARQUESAS IS (BPBM) (examined).

metrosideri var. *tincta* Osborn (*Calotettix*).
lais Eyles & Linnavuori (*Calotettix*).

(See Webb, 1981 for full citation of synonyms).

pacifica Webb, 1981: 55, figs 64–67. Holotype ♂, IRIAN JAYA (BPBM) (examined).

pallida Kirkaldy, 1906: 336; Webb 1981: 50–53, figs 41–56. Holotype ♀, AUSTRALIA (BPBM) (examined). Plate 1, Fig. 18; Fig. 40.

virescens Distant (*Paganalia*).

indicus Distant (*Zizyphoides*).

virens Haupt (*Rhombopsis*).

viridis Singh-Pruthi (*Rhombopsis*).

chatterjeei Singh-Pruthi (*Rhombopsis*).

antennalis Lindberg (*Platymetopius*).

yakushimensis Ishihara (*Yakunopona*).

australis Evans (*Platymetopius*).

(See Webb, 1981 for full citation of synonyms).

quadricornis (Linnavuori, 1969: 1181, figs 40c–e) (*Zizyphoides*); Linnavuori, 1978b: 462, figs 3c–e.

Holotype ♂, ZAIRE (NMHN) (examined).

robustipenis Webb, 1981: 54–55, figs 61–63.

Holotype ♂, SARAWAK (BMNH) (examined).

viridia Osborn, 1934b: 244–245, figs 3a–c; Webb, 1981: 54. Holotype ♀, MARQUESAS IS. (BPBM) (examined).

FAVINTIGA Webb

Favintiga Webb, 1981: 47. Type species: *Parabolopona camphorae* Matsumura, 1912, by original designation.

This monobasic genus, revised by Webb (1981), is distinguished by the ventral process of the connective and narrow second valvulae (Fig. 77).

DISTRIBUTION. Japan.

SPECIES INCLUDED.

camphorae (Matsumura, 1912: 288) (*Parabolopona*); Webb, 1981: 48, figs 28–40.

Lectotype ♀, JAPAN (EIHU) designated by Webb, 1981: 48, (examined). Figs, 48, 77, 481.

HYBRASIL Kirkaldy

Hybrasil Kirkaldy, 1907: 41, pl. 2, fig. 18; Linnavuori, 1960b: 37–38. Type species: *Hybrasil brani* Kirkaldy, by monotypy.

The taxonomic position of this monobasic genus, here transferred from the subfamily Deltocephalinae, was considered to be uncertain by Ross (1968). It can be distinguished by the unusual process between the aedeagus and connective and the aedeagus without a basal apodeme and with an apical gonopore on the anterior surface (Fig. 167) (see also remarks under *Carvaka*).

DISTRIBUTION. Fiji.

SPECIES INCLUDED.

brani Kirkaldy, 1907: 41, pl. 2, fig. 18; Linnavuori, 1960b: 38–39, figs 13a–c. LECTOTYPE ♀, FIJI: Levu, Rewa, iii (*Muir*) (BPBM), here designated (examined). Plate 1, Fig. 15; Figs 34, 74, 161–167.

SPECIES REMOVED FROM THE GENUS.

contemptus Kirkaldy (see *Carvaka*).

ISACA Walker

Isaca Walker, 1857: 172. Type species: *Isaca bipars* by monotypy.

This genus can be distinguished by its striking dark brown and yellow coloration (Plate 1, Fig. 14), antennae situated slightly below midheight of the eyes, in facial view (Fig. 9), and by its distinctive male genitalia. We have matched the type of *bipars* (without abdomen), the only previously known species, to several specimens from Sarawak, the type locality (BMNH). To avoid misidentifications two other species from Sabah and Brunei, are described below. These are externally identical to *bipars* but have slightly different male genitalia.

DISTRIBUTION. Sarawak, Sabah, Brunei.

SPECIES INCLUDED.

bipars Walker, 1857: 172. LECTOTYPE (abdomen missing), SARAWAK (Wallace) here designated (examined). Figs 9, 46, 218–224.

falcata sp. n.

sinuata sp. n.

Isaca falcata sp. n.

(Plate 1, Fig. 14; Figs 229–233)

Length: ♂, 5.1–5.8mm; ♀, 5.6–6.0mm. Female pregenital sternite with posterior margin slightly produced each side of mid-line.

Male genitalia with pygophore lacking a short posteroventral process. Anal tube processes falcate. Aedeagus with shaft nearly straight in lateral view, with a short subapical medial process posteriorly.

DISTRIBUTION. Sabah.

MATERIAL EXAMINED. Holotype ♂, **Sabah**: Sandakan (*Baker*) (NMNH).

Paratypes. **Sabah**: 2♂, 9♀, same data as holotype (NMNH, BMNH).

REMARKS. This species can be distinguished from other species of the genus by the male genitalia

characters noted in the above description.

Isaca sinuata sp. n.

(Figs 225–228)

Length: ♂, 5.2–5.4mm. Male genitalia with pygophore with a short posteroventral process. Anal tube processes slightly sinuate, directed posteriorly. Aedeagus with shaft slightly sinuate, in lateral view, with a pair of subapical anterior processes.

DISTRIBUTION. Brunei.

MATERIAL EXAMINED. Holotype ♂, **Brunei**: Ulu Temburong, 300m., ii–iii.1982 (*Day*) (BMNH).

Paratypes. **Brunei**: 2♂, same data as holotype (BMNH).

REMARKS. This species can be distinguished from other species of the genus by the male genitalia characters noted in the above description.

JAMITETTIX Matsumura *nomen dubium*

Jamitettix Matsumura, 1940: 40; Linnavuori, 1960: 324. Type species: *Jamitettix kotonis* Matsumura, by original designation.

As the type species of this monobasic genus has been lost we are uncertain of its identity (see remarks under *Bhatia*).

DISTRIBUTION. Taiwan

SPECIES INCLUDED.

kotonis Matsumura, 1940: 40. Holotype ♀, TAIWAN (lost).

SPECIES REMOVED FROM THE GENUS.

guamensis Metcalf (see *Bhatia*).

metcalfi Linnavuori (see *Bhatia*).

KAROSEEFA Webb

Karoseefa Webb, 1981: 70–71. Type species: *Karoseefa brevipenis* Webb, by original designation.

This genus can be distinguished from all others of the tribe by the parallel rather than concave sides of the clypellus.

DISTRIBUTION. Sarawak and Sabah.

SPECIES INCLUDED.

- brevipenis** Webb, 1981: 71–73, figs 149–161. Holotype, ♂ SARAWAK (BMNH) (examined). Figs 41, 73, 476.
- divergens** Webb, 1981: 73, figs 162–166. Holotype ♂, SARAWAK (BMNH) (examined). Fig. 475.

KUTARA Distant

- Kutara* Distant, 1908: 308; Linnavuori, 1978: 44. Type species: *Kutara brunnescens* Distant, by original designation.

This genus is identical to *Drabescoides* externally and has similar male genitalia, with an anterior gonopore and connective angled at midlength in lateral view. It differs in having the stem of the connective narrow rather than broad. Two strong transverse carinae on the foremargin of the head are usually present, with a sulcus between, or a single carina, with or without finer striations. See under tribal discussion for remarks on the nymph (of *productus*).

Within the seven species of the genus some species-groups are apparent but because the composition of these groups is inconsistent i.e. the same species appears in different groups, and until the large number of new species seen are described we hesitate to describe new genera for these groups. The following differences between species groups apply: crossvein present between claval veins of forewing together with 4+4 or more setae on the foretibia (all species except *lucidicosta*); vertex elevated posteriorly (all species except *lucidicosta* and *sinensis*); pygophore with an internal posterior ledge (*brunnescens* and *producta*); vertex with a central brown spot and/or transverse bar (all species except *grisescens*); foretibia quadrate in cross section and aedeagus with a pair of basal processes (*grisescens*).

Several specimens (one of which is shown in Fig. 495), representing more than one species, are similar to the type (without abdomen) of *lucidicosta*. We have therefore been unable to figure the male genitalia of this species which is best regarded for the present as a species *incertae sedis*.

The syntype series of *brunnescens* is represented by two species. A single syntype (male) (Figs 168–174) matches the genitalia figured by Linnavuori (1978) and Anufriev (1979) for this species and is probably the specimen that these authors examined. Five other syntypes (all female) match the habitus figure in the original description of this species, with respect to the more transverse spot on the vertex (Fig. 502), a variation noted in the original description. To maintain stability we

have retained the recently held identity for this species (see above) and describe a new species below for the remaining syntypes.

DISTRIBUTION. Throughout Oriental and Pacific region.

SPECIES INCLUDED.

- brunnescens** Distant, 1908: 308–309 (in part); Linnavuori, 1978: 44–45, figs 13f–h (in part); Anufriev, 1979: 166, figs 1–6. LECTOTYPE ♂, here designated, SRI LANKA: Peradeniya (BMNH) (examined). Figs 29, 168–174, 498.
- costalis** (Distant, 1908: 146). (*Dabescus*) [sic. *Drabescus*]. Holotype ♀, BORNEO (BMNH) (examined). **Comb. n.** Figs 196–200, 496.
- grisescens** Evans, 1947: 256–257, figs 31b, c, h. Holotype ♀, SARAWAK (BMNH) (examined). Figs 201–207, 503.
- lucidicosta** (Walker, 1869: 323–324) (*Iassus*). LECTOTYPE ♀, NEW GUINEA (*Wallace*) (BMNH) here designated (examined). **Comb. n.** Fig. 495.
- nigrifasciata** Kuoh (in Ge & Kuoh) 1992, 300 (316), fig. 59 a–h. Holotype ♂, CHINA (AS?) (not examined).
- producta** (Evans, 1947: 256, figs 31d, g, j) (*Drabescus*). Holotype ♀, MALAYA (BMNH) (examined). **Comb. n.** Figs 181–188, 499.
- sinensis** (Walker, 1851: 871) (*Bythoscopus*); Metcalf, 1966: 89 (*Iassus*). Holotype (sex unknown), HONGKONG (BMNH) (examined). **Comb. n.** Figs 189–195, 497.
- transversa** sp. n. for *Kutara brunnescens* Distant, 1908: 308–309, fig. 197 (misidentification in part); Linnavuori, 1978: 44–45, fig. 15a (misidentification in part).

SPECIES REMOVED FROM THE GENUS.

- javana** Melichar (see *Bhatia*)
- nigrofacialis** Distant (see *Drabescus*).

Kutara transversa sp. n.

(Figs 175–180, 502)

Kutara brunnescens Distant, 1908: 308–309, fig. 197 (misidentification, in part); Linnavuori, 1978: 44–45, fig. 15a (misidentification, in part).

Length ♂, 6.0mm; ♀, 7.0–7.3 mm. Head yellow; vertex with a medial brown spot extended laterally as a transverse line. Pronotum brown with numerous yellow spots. Forewings brownish hyaline with darker brown patches in cells and at apex.

Head with a transverse carina around margin above and below ocellus with a sulcus in between

and some finer striations. Fore tibia rounded dorsally with 4+4 spines. Forewing with a crossvein between claval veins.

Male genitalia with style expanded subapically, with apical process digitate. Connective long, angled at midlength. Aedeagus shaft cylindrical, without processes, gonopore arising from an extended anterior subapical region of shaft.

Female pregenital sternite acutely produced posterolaterally.

DISTRIBUTION. Sri Lanka

MATERIAL EXAMINED. Holotype ♂, **Sri Lanka** (*Thwaites*) (BMNH).

Paratypes. **Sri Lanka**: 5♀, Kandy (Paralectotypes of *Kutara brunescens* Distant); 1♀, Udawattekelle ((NMNH).

REMARKS. This species can be distinguished from all other species of the genus by its unusual shaped style (Fig. 177). Its simple aedeagus is damaged apically in the only male but is probably similar to *costalis* (Fig. 200).

LAMIA Linnavuori

Lamia Linnavuori, 1960b: 39. Type species: *Lamia cydippe* by original designation.

This monobasic genus can be distinguished by the parabolically produced vertex, fore wing obliquely truncate apically with outer subapical cell extending to the costal margin, resulting in a triangular-shaped fifth (outer) apical cell (Fig. 27) and by the scale-like dorsal sculpture of the first valvulae. The genus is known only from two female specimens of *cydippe* (BPBM, BMNH). The non-type specimen has slightly more extensive brown markings on the pronotum (Plate 1, Fig. 19).

DISTRIBUTION. Fiji

SPECIES INCLUDED.

cydippe Linnavuori, 1960b: 39, figs. 12j, 13d. Holotype ♀, FIJI (BPBM) (examined). Plate 1, Fig. 19; Figs 27, 79, 81.

SPECIES REMOVED FROM THE GENUS.

placida Evans (see *Nirvanguina*)

MEGABYZUS Distant

Megabyzus Distant, 1908: 294–295. Type species: *Megabyzus signandus* Distant, by original designation.

This monobasic genus, currently being revised by Dr C. Viraktamath, can be distinguished by the presence of macrosetae on the subgenital plate and by the pair of apical aedeagal processes. The first valvulae have reticulate rather than the more usual strigate dorsal sculpture.

DISTRIBUTION. Sri Lanka, India.

SPECIES INCLUDED.

signandus Distant, 1908: 295, fig. 187. Holotype ♀, SRI LANKA (BMNH) (examined). Figs, 44, 479.

MYSOLIS Kirkaldy

Mysolis Kirkaldy, 1904: 279. replacement name for *Norsia* Walker, 1869: 326. Type species: *Norsia flavidorsum* Walker, by original designation.

Norsiana Distant, 1908: 148, replacement name for *Norsia* Walker, 1869: 326.

The single known specimen of this genus (without abdomen) is distinctively marked with brown as a transverse band above and below a yellow band on the foremargin of the head and on lateral areas of the pronotum and scutellum (Plate 1, Fig. 16). Its triangularly produced vertex and colour pattern resemble *Hybrazil* but it has the vertex and pronotum shiny rather than striated and has a transverse sulcus on the foremargin of the head, although the latter character is variable within some other genera. The single antenna present is situated high on the face and extends approximately to the apex of the clavus.

A further species (*fulvescens* Walker) is listed in Metcalf's (1966) catalogue under this genus but this species is a member of the Fulgoroid family Tropiduchidae and is placed under *Kallitaxila granulata* Stål in the BMNH collection.

DISTRIBUTION. Misool I. (West Irian)

SPECIES INCLUDED.

flavidorsum Walker, 1869: 326; Distant, 1908: 148, pl. 7, figs 12, 12a. LECTOTYPE (sex unknown, abdomen missing), INDONESIA: Misool I. (*Wallace*) (BMNH), here designated (examined). Plate 1, Fig. 16; Fig. 45.

NAKULA Distant, 1918

Nakula Distant 1918: 39. Type species: *Nakula multicolor* Distant, by original designation.

The single known specimen of this genus is distinctively marked with orange (Plate 1, Fig. 7)

and in addition can be distinguished by its short head (very slightly shorter medially than next to eyes) and low position of the ocelli and antennae, the latter situated slightly below midheight of the eyes, in facial view.

DISTRIBUTION. Myanmar (Burma).

SPECIES INCLUDED.

multicolor Distant, 1918: 39, fig. 20. LECTOTYPE ♀, MYANMAR (BURMA): Mergui (*W. Doherty*) (BMNH), here designated (examined). Plate 1, Fig. 7.

NIRVANGUINA gen. n.

Type species: *Lamia placida* Evans.

Description: small species (4.0–4.6 mm). Yellow with orange patches on vertex and pronotum and brown irroration on forewing.

Head slightly narrower than pronotum, foremargin foliaceous with two transverse carinae. Vertex smooth, parabolically produced, slightly longer medially than basal width between eyes. Face strongly incurved below eyes; clypellus expanded apically, transclypeal suture present; laterofrontal suture extended to corresponding ocelli; antennae situated near upper corner of eye in facial view, longer than half body length; antennal pit not encroaching onto clypeus. Pronotum smooth, sides moderately long, carinate. Foretibia with dorsal surface round, setal formula 1+4. Hind femur with apical setal formula 2+2+1. Forewings with inner subapical cell closed; fourth (outer) apical cell small; appendix broad.

Male pygophore lobes narrowly rounded posteriorly with several dorsal macrosetae and an elongate dorsal process extended from base of lobe to near its posterior margin, dentate apically. Subgenital plate elongate, broad basally with lateral margin strongly incurved at midlength; tapered over distal half to acute apex; uni-seriate row of macrosetae ventrolaterally over basal half; several long fine setae laterally and several moderately long fine setae dorsoapically. Connective, broadly Y-shaped with stem short. Style with apical process and lateral lobe short, the former tapered to acute apex. Aedeagus with shaft short, strongly curved dorsally, compressed dorsoventrally over basal two-thirds, thereafter tubular; basal apodeme moderately long, finger-like in lateral and posterior view.

Female genitalia with first valvulae with dorsal sculpture alveolate at midlength (as Fig. 69, except oblique) turning to well strigate apically (Fig. 63).

Second valvulae with several small dorsal teeth over very broad distal half (Fig. 80); dorsal sclerotized and hyaline region present, the former short. Third valvulae with distal region curved ventrally (Fig. 82).

REMARKS. This genus is tentatively included in the Paraboloponini because although the antennae are high and long the antennal pit does not encroach onto the clypellus (Fig. 15) as in other members of this tribe. Other differences are the strongly parabolically produced vertex, strongly incurved lateral margins of the face below the eyes, and fore wing with a closed inner subapical cell and very broad appendix. Due to the small number of specimens available (type and two specimens from Papua New Guinea, CAS, BMNH) the tentorial branches have not been examined.

DISTRIBUTION. Papua New Guinea and Australia (N. Queensland).

SPECIES INCLUDED.

placida (Evans, 1966: 221, figs 37, B1–B2) (*Lamia*). Holotype ♀, AUSTRALIA (AM) (examined). Plate 1, Fig. 20; Figs 15–16, 28, 80, 82, 308–313.

OCEANOPONA Linnavuori

Oceanopona Linnavuori, 1960: 300; Webb, 1981: 73–75. Type species: *Oceanopona croceipennis* Linnavuori, by original designation.

This monobasic genus can be distinguished by the reduced number of apical setae on the hind femur (2+1). Its male genitalia are similar to *Dryadomorpha* and *Karoseefa* but the internal pygophore ledge is shorter and the apophysis of the arms of the connective are longer.

DISTRIBUTION. Eastern Caroline Islands.

SPECIES INCLUDED.

croceipennis Linnavuori, 1960: 301; Webb, 1981: 75, figs 167–178. Holotype ♂, CAROLINE IS. (BPBM) (examined). Figs 36, 480.

OMANELLA Merino

Omanella Merino, 1936: 361. Type species: *Omanella barberi* Merino, by original designation.

This distinctive genus, comprising two species, can be distinguished by the brown spots on the dorsum, long ovipositor (Figs 64, 65, 76), aedeagus fused to the midlength of the connective (the later extended

posteriorly), and highly modified style.

Long type series of both species from the Philippines have been examined (BPBM, BMNH) together with specimens of *johnsoni* from throughout the range of the genus.

DISTRIBUTION. Sri Lanka, Myanmar (Burma), S.E. Asia, Philippines.

SPECIES INCLUDED.

barberi Merino, 1936: 361–362, pl. 3, figs 5a–d. Holotype ♂, PHILIPPINES (NMNH) (examined). Figs 50, 264–270, 493.

johnsoni Merino, 1936: 363, pl. 3, figs 4a–d. Holotype ♂, PHILIPPINES (NMNH) (examined). Figs 256–263, 494.

Bhatia olivacea Distant, Ishihara, 1961: 243, fig. 48, plate 4: 24, misidentification; Linnavuori & Al-Ne'amy, 1983: 22, figs 32b–e, misidentification.

SPECIES REMOVED FROM THE GENUS.

philippina Merino (see *Roxasella*).

PARABOLOPONA Matsumura

Parabolopona, Matsumura, 1912: 288; Webb, 1981: 42–43. Type species: *Parabolocratius guttatus* Uhler, by original designation.

This genus, revised by Webb (1981) and comprising five species, can be distinguished by the elongate, foliaceous head with very high antennae and shagreen vertex (Figs 4, 8, 12), aedeagus connected by membrane to the midlength of the connective (the latter extended posteriorly) and very fine dorsal teeth of the second valvulae (Fig. 75).

DISTRIBUTION. Asia, as far south as Nepal to the Philippines (Luzon).

SPECIES INCLUDED.

chinensis Webb, 1981: 45–46, figs 20–21. Holotype ♂, CHINA (CAS) (examined).

guttata (Uhler, 1896: 291) (*Parabolocratius*); Webb, 1981: 43, figs 1–14. Lectotype ♂, JAPAN (NMNH) (examined). Figs 4, 8, 12, 43, 75.

ishihari Webb, 1981: 45, figs 15–19. Holotype ♂, JAPAN (EIHU) (examined).

luzonensis Webb, 1981: 46–47, figs 22–27. Holotype ♂, PHILIPPINES (NMNH) (examined). Plate 1, Fig. 17.

yangi Zhang, Chen & Shen, 1995: 11, fig. 4. Holotype ♂, CHINA (BAU) (examined).

PAROHINKA Webb

Parohinka Webb, 1981: 57–58. Type species: *Muirella longiseta* Melichar, by original designation.

The acutely produced head (Fig. 477) and elongate face of this genus, comprising twelve species, are similar to *Dryadomorpha* and *Rhutelorbus* but it differs from these and other genera by its asymmetrical aedeagus.

DISTRIBUTION. Southeast Asia and the Pacific.

SPECIES INCLUDED.

apicalis Webb, 1981: 68, figs 126–128. Holotype ♂, SARAWAK (BPBM) (examined).

brevicephala Webb, 1981: 66, figs 111–118. Holotype ♂, SARAWAK (BMNH) (examined).

dulita Webb, 1981: 64–65, figs 103–110. Holotype ♂, SARAWAK (BMNH) (examined).

longiseta (Melichar, 1914: 135, pl. 3, figs 15, 15a) (*Muirella*); Webb 1981: 68–70, figs 129–143. Lectotype ♂, JAVA (MB) (examined). Figs, 39, 477.

lotophagorum (Kirkaldy, 1907: 41) (*Dryadomorpha*); Linnavuori, 1960: 42; Webb, 1981: 63–64, figs 92–97. Neotype ♂, FIJI (BPBM) (examined).

malayensis Webb, 1981: 70, figs 144–148. Holotype ♂, MALAYA (BMNH) (examined).

morona Webb, 1981: 60–61, figs 79–86. Holotype ♂, JAVA (BMNH) (examined).

philippina Webb, 1981: 66, figs 119–123. Holotype ♂, PHILIPPINES (BPBM) (examined).

recurva Webb, 1981: 67, figs 124–125. Holotype ♂, SARAWAK (BPBM) (examined).

sinuata Webb, 1981: 61, fig. 86. Holotype ♂, PAPUA NEW GUINEA (BPBM) (examined).

spinosa Webb, 1981: 64, figs 98–102. Holotype ♂, PAPUA NEW GUINEA (BMNH) (examined).

trispicata Webb, 1981: 61–63, figs 87–91. Holotype ♂, SOLOMON IS. (BPBM) (examined).

RHUTELORBUS Webb

Rhutelorbus Webb, 1981: 56–57. Type species: *Rhutelorbus merinoi*, by original designation.

This monobasic genus (Fig. 478) is similar to *Dryadomorpha* and *Parohinka* but can be distinguished from these and other genera by its dorsally visible lateral margins of the face.

DISTRIBUTION. Philippines, Malaya and Sarawak.

SPECIES INCLUDED.

merinoi Webb, 1981: 57, figs 68–78. Holotype ♂, MALAYA (BMNH) (examined). Fig. 478.

ROXASELLA Merino

Roxasella Merino, 1936: 359. Type species: *Roxasella camusi* Merino, by original designation.

This genus, which is poorly defined at present, contains a variable assemblage of six species. In all species, except *losbanosa*, two carinae are discernable around the fore margin of the head, with a variable sulcus between, in addition to finer striations. The only male (the holotype) of the genotype, *camusi*, is missing but the allotype of *camusi* examined (NMNH) comes nearest to *losbanosa* and *biarcuatus* in head length and colour pattern. Of the remaining species, *philippina* (with similar male genitalia to *biarcuatus* and *losbanosa*) and *laetisigna* both have shorter heads and bright orange markings, similar to *Nacula* and *Tenompoella*. *R. egregius* is known from only three female specimens from Myanmar (Burma), two misidentified by Distant (1908a, 1918) as *laetisigna*. These two species are identical externally except that in the former the pregenital sternite is asymmetrical, which would be considered aberrant if it were not for its presence in all three specimens.

Attention is drawn to the male genitalia of *laetisigna* where the style is reminiscent of some species of *Drabescus* and to the extra sclerite between the connective and the aedeagus which is also found in some other genera (see 'Review of characters').

In addition to the holotypes, series of specimens of *philippina* and *losbanosa* from the Philippines have been examined and a few specimens of *laetisigna* from Singapore, Sarawak and Sabah (NMNH, BMNH). No material of *camusi* and *biarcuatus* other than the allotype and lectotype respectively, has been seen. Two specimens of the latter and one of *laetisigna*, collected by Wallace and deposited in F. Walker's collection, Museum of Victoria (pers. comm. Dr. A. Neboiss), may be syntypes of these species but were not examined.

DISTRIBUTION. Myanmar (Burma), Philippines, Singapore, Sarawak, Borneo, Sabah.

SPECIES INCLUDED.

biarcuata (Walker, 1857: 174) (*Tartessus*). LECTOTYPE ♂, SARAWAK (BMNH) here

designated (examined). **Comb. n.** Plate 1, Fig. 11; Figs 241–245.

camusi Merino, 1936: 360, pl. 3, fig. 1, a–c. Holotype ♂, PHILIPPINES (lost). Plate 1, Fig. 12.

losbanosa Merino, 1936: 360, pl. 3, fig. 2, a–d. Holotype ♂, PHILIPPINES (NMNH) (examined). Plate 1, Fig. 13; Figs 234–240.

egregia (Stål, 1864: 66) (*Selenocephalus*), Holotype ♀, Myanmar (BURMA) (examined). **Comb. n.** Fig. 505.

laetisigna (Walker) Distant, 1908: 307 (in part), 1918: 42, fig. 22, misidentification.

laetisigna (Walker, 1857: 174) (*Bythoscopus*); Metcalf, 1966: 175 (*Drabescus*). LECTOTYPE ♂, SARAWAK (BMNH) here designated, (examined). **Comb. n.** Plate 1, Fig. 9; Figs 250–255.

philippina (Merino, 1936: 362, pl. 3, figs 3a–d) (*Omanella*). Holotype ♂, PHILIPPINES (NMNH) (examined). **Comb. n.** Plate 1, Fig. 10; Figs 246–249.

philippinensis Baker nom. nud.

SOMBAKIDIA gen. n.

Type species: *Eutettix morismus* Merino

Description. Small species (5.0–5.4 mm). Yellow with brown markings as in Figs 52, 513. External characters as in *Waigara* but laterofrontal sutures short; ocelli close to eyes, approximately half own diameter from eye; vertex smooth with very faint longitudinal striations; pronotum obscurely transversely wrinkled and hind femur with apical setal formula 2+2+1.

Male genitalia: Pygophore lobes narrowly rounded posteriorly with several macrosetae, an oblique internal ledge from dorsal margin to ventro posterior corner. Valve elongate. Subgenital plate short and broad, triangular shaped with a few irregularly arranged short fine setae dorsolaterally. Style elongate, narrow basally, apical process short, tapered to apex, lateral lobe long. Connective short, club-shaped with arms fused. Aedeagus with shaft moderately long with a single elongate ventral process, gonopore apical; basal apodeme very short.

Female genitalia: First valvulae with reticulate sculpture. Second valvulae narrow, tapered from base to apex with dorsal prominence, sclerotized and hyaline region and teeth absent.

REMARKS. This genus is similar externally to *Tengatka* but can be distinguished by its short

laterofrontal sutures and unusual male and female genitalia as noted above.

The type series of *Eutettix morismus*, comprising several specimens (male and female), was examined (NMNH, BMNH).

DISTRIBUTION. Philippines (Mindanao and Basilan).

SPECIES INCLUDED.

morisma (Merino, 1936: 377, pl. 4, figs 5a–d) (*Eutettix*). Holotype ♀, PHILIPPINES (NMNH) (examined). **Comb. n.** Figs 52, 66–67, 78, 298–307, 513.

TENGATKA gen. n.

Type species: *Eutettix basilana* Merino

Description: Small species (4.8–5.3mm). Yellow with brown markings as in Figs 51, 512. External characters as in *Sombakidia* but with laterofrontal sutures extended to ocelli.

Male genitalia: Pygophore lobes narrowly rounded posteriorly with several macrosetae; without processes. Valve very short (not or only slightly visible in dried specimens). Subgenital plate triangular with finger-like apex, few short fine setae laterally. Style narrow basally, lateral apophysis elongate, apical process short, tapered to acute apex, few sensory pits towards lateral lobe, the latter short. Connective Y-shaped, short and broad. Aedeagus robust, laterally compressed, shaft short, with subapical processes and a single ventral process from posterior surface, gonopore apical, basal apodeme short; socle broad in lateral aspect.

Female genitalia: First valvulae with strigate sculpture dorsally. Second valvulae similar to *Bhatia* (Fig. 71).

REMARKS. This genus is similar to *Sombakidia* externally but can be distinguished from this and other genera by its short male valve and distinctive style as noted above.

The type series of *Eutettix basilana*, comprising several specimens (male and female), was examined (NMNH, BMNH).

DISTRIBUTION. Philippines (Mindanao and Basilan).

SPECIES INCLUDED.

basilana (Merino, 1936: 377, pl. 4, figs 6a–d) (*Eutettix*). Holotype ♀, PHILIPPINES (NMNH) (examined). **Comb. n.** Figs 51, 291–297, 512.

TENOMPOELLA gen. n.

Type species: *Tettigonia difficilis* Walker

Description: Moderately large species, 6.2–6.5mm. Venter pale yellow, vertex, pronotum and scutellum green with orange markings, fore wing brownish hyaline margined with orange and marked with dark brown apically and as a spot in each cell and at apex of clavus and claval veins.

External characters as in *Waigara* but with a fine carina around fore margin of head above and below ocellus in addition to finer striations and ocelli approximately twice own diameter from eyes. Vertex nearly smooth, with anterior margin very slightly longer medially than next to eyes. Antennae situated at mid-height of eye in facial view. Pronotum nearly smooth, sides moderately long and carinated. Hind femur with apical setal formula 2+2+1.

Male genitalia: Pygophore lobes broadly rounded posteriorly with several macrosetae. Subgenital plate elongate, triangular shaped, with a longitudinal row of stout lateral macrosetae at midlength and a few short fine setae along lateral and apical margin. Style broad basally, apical process short curved and tapered to apex with fine setae and sensory pits basally; lateral lobe moderately long. Connective Y-shaped with stem produced posteriorly and bifurcate apically, connected to aedeagus by membrane at its midlength; arms short. Aedeagus small and simple, shaft short, tubular, curved dorsally and tapered to apex, without processes; gonopore elongate, situated apically on posterior surface; basal apodeme elongate, compressed anteroposteriorly with apical and basal lateral arms.

Female genitalia: First valvulae with strigate sculpture dorsally. Second valvulae similar to *Bhatia* (Fig. 71).

REMARKS. This genus can be distinguished from all other genera of the tribe by the small inner apical cell of the fore wing, posteriorly produced connective and macrosetae on the subgenital plate.

Males and females from Sandakan (Sabah) and Singapore (BPBM and BMNH) which match the female type from 'Sarawak' have been examined.

DISTRIBUTION. Sarawak, Sabah, Singapore.

SPECIES INCLUDED.

difficilis (Walker, 1857: 169) (*Tettigonia*); Metcalf 1965:235, (*Bothrogonia*). LECTOTYPE ♀, SARAWAK (BMNH) here designated, (examined). **Comb. n.** Plate 1, Fig. 8; Figs 30, 271–277.

WAIGARA gen. n.

Type species: *Melichariella boninensis* Matsumura

Description: moderately large species (6.6–7.2mm). Yellow with a pair of black spots posteriorly on vertex.

Head wider than pronotum; anterior margin angularly rounded to face in profile, transversely striated; ocelli on margin, approximately 3 times own diameter from corresponding eye. Anterior tentorial branches T-shaped (similar to Fig. 19). Vertex obliquely striated, with anterior margin slightly longer medially than next to eyes, sulcate subapically. Face with clypellus expanded apically; transclypeal suture present; laterofrontal suture extended to lateral margin of ocellus; antennae situated slightly above midheight of eye in facial view, longer than half body length; antennal pit encroaching onto clypellus. Pronotum transversely striated, side margins short and carinated. Foretibia with dorsal surface round, setal formula 1+4. Hind femur with apical setal formula 2+1+1.

Male pygophore lobes acutely rounded posteriorly with several macrosetae and short fine setae, without processes. Subgenital plate elongate, narrowed to midlength with apical half finger-like, with several moderately long fine setae laterally. Style broadened at base, apical process short, lateral lobe distinct, short; with fine setae on dorsal subapical area. Boundary between connective and aedeagus obscure. Connective Y-shaped, short and broad, stem not clearly defined. Aedeagus with shaft short, curved dorsally, laterally compressed, with pair of short processes subapically from posterior surface, gonopore apical, socle broad in lateral view, basal apodeme short.

Female genitalia: First valvulae with strigate sculpture dorsally. Second valvulae similar to *Bhatia* (Fig. 71).

REMARKS. This genus is similar to *Bhatia* externally but has 2+1+1 rather than 2+2+1 hind knee spines. From this and most other genera its male genitalia can be distinguished by the robust aedeagus with broad socle and with both shaft and basal apodeme short.

Several specimens from the type series of *Melichariella boninensis* (EIHU) and other specimens from the Bonin Islands (BMNH, SU) have been examined.

DISTRIBUTION. Bonin Islands.

SPECIES INCLUDED.

boninensis Matsumura, 1914: 238 (*Melichariella*). LECTOTYPE ♂, BONIN IS: Ogasawara, 20.vii.1905 (re-mounted and labelled on own pin)

(EIHU), here designated (examined). **Comb. n.** Figs 35, 278–283, 491.

WELMAYA gen. n.

Type species: *Bythoscopus nigrilinea* Walker

Description: Moderately large species (6.6–8.3 mm). Yellowish brown with darker brown markings (Fig. 492).

External characters as in *Waigara* but with head approximately as wide as pronotum; ocelli on margin approximately own diameter from corresponding eyes. Vertex very slightly longer medially than next to eye. Pronotum obscurely transversely wrinkled, side margins moderately long, carinated. Fore tibia with dorsal surface somewhat flattened. Hind femur with apical setal formula 2+2+1.

Male genitalia: Pygophore lobes broadly rounded with several macrosetae. Subgenital plate elongate triangular with finger-like apex, a few moderately long fine setae along lateral margin. Style with apical process and lateral lobe short, the former tapered to acute apex. Connective short, stem bifurcate with an additional sclerite between apex of arms and aedeagus. Aedeagus with shaft filamentous, expanded apically, gonopore obscure; basal apodeme elongate, compressed anteroposteriorly.

Female genitalia with well strigate sculpture dorsally. Second valvulae similar to *Bhatia*.

REMARKS. This genus can be distinguished from all other genera of the tribe by its unusual connective and aedeagus as noted above.

In addition to the type, a few specimens from throughout its range have been examined (BMNH, BPBM, NMNH).

DISTRIBUTION. Malaya, Sabah, Sarawak and Borneo.

INCLUDED SPECIES.

nigrilinea (Walker, 1857: 174) (*Bythoscopus*); Distant, 1908: 146 (*Drabescus*). LECTOTYPE ♂, SARAWAK (*Wallace*) (BMNH) here designated, (examined). **Comb. n.** Figs 47, 284–290, 492.

Tribe Drabescini Ishihara

Drabescidae Ishihara, 1953: 6

Drabescinae Linnavuori, 1960b: 36; Linnavuori, 1978a: 41

Drabescini Linnavuori & Al-Ne'amy, 1983: 21.

Diagnosis: fore margin of head smooth or irregularly striated, sometimes with a keeled epistomal suture; clypeus rugose; antennae moderately long and highly placed; antennal ledge strong; dorsal surface of fore tibia distinctly flattened; tentorium falcate; fore wing appendix broad.

REMARKS. Contrary to Hill (1969) we have found that the second valvulae are generally similar to most Paraboloponini (Fig. 71). Although the head is usually short, in an undescribed species from Indonesia it is very long (Fig. 544). The nymph of one species was studied (Fig. 543) and has the head more elongate than in the adult (Fig. 542).

Although a 'distinctive' group all the above diagnostic features are present in some other subfamilies and tribes (see 'Subfamily relationships') and if these were to be considered primitive, as suggested by Linnavuori & Al-Ne'amy (1983), then the group would be poorly defined. The tribe has some similarity to Paraboloponini in the shape of the tentorium and high antennae, and some species, with paired basal aedeagal processes, are similar to the paraboloponine genus *Bhatia*. In addition, a few species of *Bhatia* have the foretibia slightly flattened dorsally which is intermediate between the distinctly flattened condition found in Drabescini and the rounded condition found in other Selenocephalinae.

We include only two genera in the tribe, judging the genera and subgenera here synonymized under *Drabescus* invalid, their differences being either small compared to some other species or, we have found intermediates (see also remarks under *Drabescus*).

Key to genera of Asian and Pacific Drabescini

- 1 Vertex shorter medially than next to eyes; anterior margin of head with a ridge between ocelli; subgenital plate with a row of stout macrosetae (Fig. 457); style with several stout subapical setae (Fig. 463); aedeagus without processes, basal apodeme strongly produced dorsolaterally (Fig. 464) **Rengatella**
- Vertex shorter to longer medially than length next to eyes; anterior margin of head without a ridge between ocelli, sometimes with a ridge between antennae; subgenital plate and style without stout setae, aedeagus with or without processes, basal apodeme not or weakly produced dorsolaterally **Drabescus**

DRABESCUS Stål

Drabescus Stål, 1870: 738. Type species: *Bythoscopus remotus* Walker, by monotypy

Drabescus (*Ochrescus*) Anufriev & Emeljanov, 1988: 174. Type species: *Drabescus ochrifrons* Vilbaste, by original designation. **Syn. n.**

Drabescus (*Leucostigmidium*) Anufriev & Emeljanov, 1988: 174. Type species: *Drabescus nigrifemoratus* Matsumura, by original designation [misidentified = *vilbastei* sp. nov.]. **Syn. n.**

Paradrabescus Kuoh, 1985: 379 (382–383). Type species: *Paradrabescus testaceus* Kuoh, by original designation. **Syn. n.**

Tylissus Stål, 1870: 739. Type species: *Tylissus nitens* Stål, by monotypy. **Syn. n.**

Within this large genus (currently comprising 37 species) only *natalensis*, from Africa, occurs outside the study area. There is considerable variation within the genus but the characters give contradictory evidence of relationship. We would suggest therefore that new genera are not described for the included species until the many new species seen are described and a detailed study of all the species is undertaken.

The following notes apply to the species examined. The type of *ineffectus* lacks its abdomen and its identity (Figs 457–464) has been inferred from a similar specimen also from northern China (BMNH); similar specimens from elsewhere in China include the types of *albostrigatus* (see below) and at least one new species. The male genitalia figures of *angulatus* and *formosanus* are from a specimen from Pakistan (BMNH) and China (NAU) respectively, matched to the female types. The identity of four other species from China, *albostrigatus*, *fuscorufous*, *extensus* and *piceus*, is uncertain as males could not be associated with the female holotypes of the first three species, and the holotype of *piceus*, the only male, is poorly preserved and possibly poorly developed. The original figure of this latter species should be consulted because the male genitalia are not figured here. The habitus photograph given of *piceus* (Fig. 521) is of the allotype female, which matches the holotype male but also, with the exception of the pregenital sternite, matches the allotype female of *testaceus*. All three specimens have a slightly shorter vertex than the holotype male of *testaceus* (Fig. 533). The association of these males and females is therefore uncertain. Only the lectotype female of *stramineus* (Plate 1, Fig. 2) from India, is known. If this is not mis-labelled we hesitate to identify three externally similar specimens from Sulawesi (BMNH) as this species, (with male genitalia similar to *samoana*), as the available evidence suggests that *Drabescus* species are not widely distributed. There is some variation in male genitalia between specimens identified as *samoana*

(NMNH, BPBM, BMNH). This relates to the pygophore process (Figs 363, 365) and the width of the aedeagal shaft in posterior view, which is slightly broader in specimens from the Philippines. The type series of *feraminensis* (BPBM) is represented by more than one species. Unexplainably, the holotype of this species now bears different data to that recorded in the original description and in the BPBM type list. The correct data label could not be traced. The aedeagus and style preapical angle of the holotype of *gressitti* (Figs 436–439) differ slightly from similar specimens from Papua New Guinea (BPBM, BMNH), which may or may not be this species. The photograph of *kempi* is a specimen matched to the original description and figure only, the type being unavailable for study. The male genitalia of the type of *nitobei* are missing but from the drawings made by Dr Viraktamath of the type genitalia this species and *elongatus* are identical. To maintain stability we have selected *nitobei* as the senior name (both species have the same date of publication) as being the more commonly used name for this species. The identification of females of *nitobei* and *nigrifemoratus* (BMNH, SU) (Figs 335 and 350) is tentative. The identity of *nitens* (the type species of *Tylissus* = *Drabescus*) is uncertain; males of two different species match the female type and one of these is photographed (Fig. 539). These species and other similar new species (BPBM) (here referred to as the *nitens* group) represent one extreme of variation in *Drabescus* in having the fore margin of the head strongly rounded in profile. As the head shape in *Drabescus* is very variable and as the male genitalia of the *nitens* group are similar to some other *Drabescus* species we feel justified in synonymising *Tylissus* with *Drabescus*.

Two new species, *evansi* and *vilbastei*, are described below for misidentified figured specimens in the literature.

DISTRIBUTION. Widespread in southern Asia and the Pacific, and one species (*natalensis*) in Africa.

SPECIES INCLUDED.

- albostriatus** Yang, 1995: 42 (44), fig. 7. Holotype ♀, CHINA (BAU) (examined).
angulatus Signoret, 1880b: 210 (120), pl.7, fig.73. LECTOTYPE INDIA (NHMW) here designated (examined). Figs 380–384, 525.
ater (Walker) (see *remotus* Walker).
atratus Kato 1933c: 456, pl.14, fig.17, TAIWAN (Kato coll.) (not examined).
breviolus Matsumura, 1912: 292–293. Syntype ♀, JAPAN (EIHU) here designated (examined). Fig. 520.
brunneus Evans, 1972: 198–199, figs 11j. Holotype

♂, NEW GUINEA: IRIAN JAYA (BPBM) (examined). Figs 431–435, 519.

conspicuous Distant, 1908: 306. LECTOTYPE ♂, SRI LANKA: Peradeniya, ii.1901 (BMNH) here designated (examined). Figs 358–362, 530.

limbaticeps (Stal, 1858: 453) (*Selenocephalus*); Melichar, 1903: 170 (*Drabescus*). LECTOTYPE ♀, SRI LANKA (IZW), here designated (examined). **Syn. n.**

elongatus Matsumura, see *nitobei* Matsumura
evansi sp. n. for *Drabescus heroni* Evans, Evans 1972: 197–198, figs 11a, f (misidentification).

extensus Kuoh, 1985: 377–378 (382) figs 1–2. Holotype ♀, CHINA (AAU) (examined). Fig. 515.

fasciata Kato (see *ineffectus* (Walker).

femoratiformis Kwon & Lee, see *nigrifemoratus* (Matsumura).

feraminensis Evans, 1972: 198, fig. 11h. Holotype ♂, PAPUA NEW GUINEA (BPBM) (examined). Figs 446–449, 534.

flavicollis Linnavuori, 1960a: 329 (Figs 47a–e). Holotype ♂, CAROLINE IS. (BPBM) (examined). Plate 1, Fig. 3; Figs 369–374.

formosanus Matsumura, 1912: 294–295. LECTOTYPE ♀, CHINA:TAIWAN (EIHU) here designated (examined). Figs 375–379, 540.

trichromus Yang, 1995: 41–42 (44), fig. 6. Holotype ♂, CHINA (BAU) (examined). **Syn. n.**

fuscorufous Kuoh, 1985: 378 (382), figs 3–4. Holotype ♀, CHINA (AAU) (examined). Fig. 518.

gressitti Evans, 1972: 198, figs 11c–e. Holotype ♂, PAPUA NEW GUINEA (BPBM) (examined). Figs 436–439, 535.

heroni Evans, see *samoanus* Osborn

ineffectus (Walker, 1858: 266) (*Bythoscopus*); Distant, 1908b: 145 (*Dabescus* [sic]). Holotype (sex unknown, abdomen lost), CHINA (BMNH) (examined). Figs 72, 320–326, 541.

fasciata (Kato, 1932: 224) (*Athysanopsis*); Kato, 1933b; pl.26, fig.7; Lee, 1979: 363, Plate 276, figs 1–13. Holotype ♀, CHINA (Kato coll.) (not examined). **Syn. n.**

ochrifrons Vilbaste, 1968: 116–118, figs 95a–g (*Drabescus*). Holotype ♂, RUSSIA (IZBT); synonymised with *fasciata* Kato by Lee, 1979: 363; **Syn.n.**

kaindii Evans, 1972: 199, figs 11g. Holotype ♂, IRIAN JAYA (BPBM) (examined). Figs 403–407, 537.

kempi Singh-Pruthi, 1930: 36, Pl. 3, figs 4, 4a. Holotype ♀, INDIA (Indian Museum) not examined. Fig. 517.

limbaticeps (Stal), see *conspicuous* Distant.

modestus Linnavuori, 1960a: 329–330, figs 48a–c. Holotype ♂, CAROLINE IS. (NMNH)

- (examined). Figs 314–319, 536.
nakanensis Matsumura, see *elongatus* Matsumura.
natalensis Distant, 1910: 242, pl. 23, figs 11, 11a.
 Syntype ♀ S. AFRICA (BMNH) (examined).
nervosopunctatus Signoret, 1880: 209, pl. 7, fig. 72.
 LECTOTYPE ♀ INDIA (Wien) here designated
 (examined). Figs 413–417, 527.
nigrifemoratus (Matsumura, 1905: 63, pl. 21, fig.
 17) (*Selenocephalus*); Matsumura 1912: 290
 (*Dabrescus* [sic]). LECTOTYPE ♂, JAPAN: 091
 Kubo, 17.vi, remounted and labelled (EIHU)
 here designated (examined). Figs 333–338, 531.
femoratiformis Kwon & Lee, 1979: 53–54, fig. 4.
 Holotype ♀, KOREA (depository unknown).
 Syn.n.
nigrofacialis (Distant, 1918: 42–43) (*Kutara*).
 LECTOTYPE ♂, INDIA: Chikkaballapura
 (*T.V. Campbell*) (BMNH) here designated
 (examined) **comb. n.** Figs 327–332, 524.
nitens (Stål, 1870: 739–740) (*Tylissus*).
 LECTOTYPE ♀, PHILIPPINES (NRS) here
 designated (examined). **comb. n.** Fig. 539.
nitobei (Matsumura, 1912: 290–291) (*Drabescus*).
 Holotype ♂, JAPAN (EIHU) (examined). Figs
 345–349, 538.
elongatus Matsumura, 1912: 292. LECTOTYPE
 ♂, JAPAN: Ishiyama, 7.viii.1903 (EIHU) here
 designated (examined). **syn. n.**
nakanensis Matsumura, 1912: 293–294.
 Holotype ♂, JAPAN (EIHU) (examined). **Syn.**
n.
notatus Schumacher, 1915: 99. Syntypes (sex
 unknown), TAIWAN (lost?).
ochrifrons Vilbaste (see *ineffectus* (Walker))
ogumae Matsumura, 1912: 291–292. Lectotype ♂,
 JAPAN (EIHU) (examined). Plate 1, Fig. 1; Figs
 418–424.
pallidus Matsumura, 1912: 293. Syntype ♀, JAPAN
 (EIHU) (not examined). Plate 1, Fig. 4; Figs
 351–357.
palmerstoni Evans, see *samoanus* Osborn
piceatus Kuoh, 1985: 378–379 (382), figs. 5–8.
 Holotype ♂, CHINA (AAU) (examined). Figs
 425–430, 529.
piceus (Kuoh, 1985: 381 (383), figs 16–19)
 (*Paradrabescus*). Holotype ♂, CHINA (AAU)
 (examined). **Comb. n.** Fig. 521.
politus (Walker, 1870: 320) (*Bythoscopus*); Metcalf,
 1966: 76 (*Iassus*). LECTOTYPE ♀
 INDONESIA: Morotai I. (*Wallace*), (BMNH)
 here designated (examined). **Comb. n.** Fig. 516.
remotus (Walker, 1851: 866) (*Bythoscopus*);
 Signoret, 1880: 208 (118), pl.7 fig. 71
 (*Drabescus*). LECTOTYPE (sex unknown,
 abdomen lost), PHILIPPINES, (BMNH) here
 designated (examined). Figs 25, 385–391, 514.
ater (Walker, 1851: 871) (*Bythoscopus*). Holotype
 ♂, PHILIPPINES (BMNH) (examined).
 Synonymized by Merino 1936a: 369.
samoanus Osborn, 1934a: 176, fig. 10. Holotype ♂,
 SAMOA (BPBM) (examined). Figs 363–368,
 542, 543.
palmerstoni Evans, 1972: 199, fig. 11i. Holotype
 ♂, AUSTRALIA (QM) (examined). **Syn.n.**
heroni Evans, 1966: 221, fig. 32h; Evans 1972:
 197–198, figs 11a, f. Holotype ♂, AUSTRALIA
 (AM) (examined). **Syn.n.**
shillongensis Rao, 1989: 65. Holotype ♂, INDIA
 (ZSI) (examined). Figs 392–396, 532.
sirunkensis Evans, 1972: 198, fig. 11k. HOLOTYPE
 ♂, PAPUA NEW GUINEA (BPBM)
 (examined). Figs 450–456, 523.
stramineus Distant, 1908: 306–307, fig. 196.
 LECTOTYPE ♀, INDIA Nilgiri (*Hampson*)
 (BMNH) here designated (examined). Plate 1,
 Fig. 2.
testaceus (Kuoh, 1985: 380–381 (383), figs 9–15)
 (*Paradrabescus*). Holotype ♂, CHINA (AAU)
 (examined). **Comb.n.** Figs 397–402, 533.
trichromus Yang (see *formosanus* Matsumura)
vilbastei sp. n. for *D. nigrifemoratus* (Matsumura)
 Vilbaste, 1971: 105, figs 63–68; Anufriev &
 Emeljanov, 1988: 175–176, pl. 116, Fig. 2, pl. 118,
 figs 9–14; Lee, 1979: 356, pl. 266, figs 7–12;
 misidentification.
vitreus Schmidt, 1926: 256. LECTOTYPE ♂,
 INDONESIA: Baru I., 1921 (*L.J. Toxopeus*)
 (IZW) here designated (examined). Figs
 408–412, 522.

SPECIES REMOVED FROM THE GENUS.

- costalis** Distant (see *Kutara*).
nigrilinea Walker (see *Welmaya*)
laetisigna (Walker) (see *Roxasella*)
metallicus (Walker) (see *Rengatella*)
productus Evans (see *Kutara*)
striatus Anufriev (see *Drabescoides nuchalis*)

***Drabescus evansi* sp. n.**

(Figs 440–445, 526)

Drabescus heroni Evans, Evans 1972: 197–198, figs 11a, f, misidentification.

Length: ♂, 7.7–8.7mm, ♀, 8.0–8.4mm. Yellowish brown, foremargin of head with a yellow band between two dark brown bands. Face with a broad yellow band laterally, continued onto thorax; clypellus and clypeus sometimes dark brown. Pronotum with numerous yellow spots, anterior margin yellow. Sides of scutellum yellow. Forewing veins dark brown with whitish yellow spots. Female

with ovipositor and pregenital sternite posteriorly and medially, dark brown.

Vertex slightly longer medially than next to eyes. Foremargin of head with a thick rim bordered ventrally by a transverse ridge between antennae. Fore tibia with dorsal surface non-dilated. Hind femur with 2+1 stout setae. Female pregenital sternite triangularly produced medially.

Male genitalia with posteroventral margin of pygophore with a small tooth. Connective with stem short. Style with apical process short, digitate. Aedeagus with shaft narrow throughout length, cylindrical, strongly curved dorsally with long preatrium, the latter with a pair of very long posteriorly directed processes.

MATERIAL EXAMINED. Holotype ♂, **Papua New Guinea:** Morobe Distr., Herzog Mts, Vagau, 4,000', 4-17.i.1965 (BMNH).

Paratypes. **Papua New Guinea:** 3♂, 6♀, same data as holotype (BMNH); 1♀, Wanuma, Adelbert Mts, 800-1000m. (BMNH); 1♂, Wau, 1200m. (AMNH); 1♂, Fergusson Isl. 900m. (AMNH). **Irian Jaya:** 5♂, 1♂ (RML).

REMARKS. This species has similar male genitalia to *feraminensis* but differs in having the aedeagus with a pair of basal processes rather than a single bifurcate process and the shaft less strongly curved dorsally and in lacking basal and apical articulating struts of the aedeagus and connective respectively.

Drabescus vilbastei sp. n.

(Figs 339-343, 528)

Drabescus nigrifemoratus (Matsumura) Vilbaste, 1971: 105, figs 63-68, misidentification.

Length: ♂, 8.3mm; ♀, 9.0mm. Colour and external characters as in *evansi* but lower half of face yellow rather than with a yellow transverse band laterally.

Male genitalia similar to *pallidus* but apical process of style shorter and aedeagus with shaft and processes longer and gonopore smaller.

DISTRIBUTION. Russia, Japan, N. China.

MATERIAL EXAMINED. Holotype ♂, **Japan:** Honshu, Saitama Pref., Nihongi Pass, 14.viii.1984, (*M. Hayashi et al.*) (SU).

Paratypes. 1♂, **Japan:** Ibaraki Pref., Takahagi, Mt Tsuchi-dake, 4.ix.1986, (*M. Hayashi et al.*) (BMNH, SU). **China:** 1♂, Jilin, 20.viii.1939 (AS). **Russia:** 1♂, Nakhodka (ZIRAS); 1♂, Ussuriysk (BMNH).

REMARKS. This species has been recorded and figured from Russia by various authors as *nigrifemoratus* following Vilbaste (1971).

Although similar to *nitobei* and *nigrifemoratus* externally its male genitalia are similar to *pallida* (see above). Some topotypical females examined (ZIRAS, SU) may be this species but the posterior margin of the pregenital sternite is deeply concave medially in specimens from Russia while in specimens from Japan it is slightly produced medially (see figure 344).

RENGATELLA gen. n.

Type species: *Bythoscopus metallicus* Walker

Brown with a yellow band between eyes at level of ocelli and thorax densely marked with small yellow spots.

Head wider than pronotum; anterior margin of face rounded more or less in profile, smooth with a few short transverse striations between ocellus and eye; ocelli on margin, visible from above, approximately three times own diameter from corresponding eye; a transverse ridge between lateral frontal sutures immediately below ocelli. Anterior tentorial branches falcate. Vertex with midlength very slightly shorter than length next to eye, shiny with faint longitudinal striations; coronal suture indistinct. Face shagreen with gena and dorsal area of clypeus rugose; clypellus, expanded apically with a medial ridge; transclypeal suture obscure; laterofrontal suture extended laterad of ocellus; antennal ledge strong, antennae high, near upper corner of eye, long, nearly half body length. Pronotum and scutellum hairy, the former transversely wrinkled with side margins moderately long and carinated. Forewing as in Fig. 26; veins hairy. Fore tibia with dorsal surface flattened, dorsal lateral margins sharp; hind femur with apical setal formula 2+2+1.

Male genitalia: Pygophore with a posterior process. Subgenital plate elongate, triangular-shaped, with a row of stout macrosetae over distal half. Style with base broad, apical process digitate with several lateral setae; lateral lobe short. Boundary between connective and aedeagus obscure, the former Y-shaped, short and broad, stem not clearly defined. Aedeagus with shaft elongate, curved dorsally and tapered to apex, cylindrical, without processes, with or without lateral flanges, gonopore apical on posterior surface; basal apodeme with strongly diverging apical arms.

Female genitalia: First valvulae with strigate sculpture dorsally. Second valvulae similar to *Bhatia* (Fig. 71).

DISTRIBUTION. Sumatra, Malaya, Borneo.

REMARKS. This genus can be distinguished externally from *Drabescus* by the characters noted in the above generic key. We have matched the female type of *metallica* from Sarawak to one of two species from this region; the remaining species is new. A further new species is from Sumatra and Malaya. As the differences between these species are slight and to avoid misidentifications the two new species are described below.

SPECIES INCLUDED.

metallica (Walker, 1857: 173) (*Bythoscopus*).
LECTOTYPE ♂ SARAWAK (*Wallace*)
(BMNH) here designated (examined). **Comb.n.**
Plate 1, Fig. 5; Figs 26, 457–464.
robustipenis sp.n.
malayensis sp.n.

Rengatella robustipenis sp. n.

(Figs 465–467)

Length: ♂, 10.0mm. External characters as in generic description. Male genitalia differ from *metallicus* and *malayensis* in having the style apical process shorter and the aedeagal shaft more elongate, with the socle larger and the arms of the basal apodeme shorter.

DISTRIBUTION. Sarawak.

MATERIAL EXAMINED.

Holotype ♂, **Sarawak**: Gunong Mulu Nat. Park, 1000m. (BMNH).

Paratypes. **Sarawak**: 1 ♂, Foot of Mt Dulit, junction of river Injar and Lejok (BMNH).

Rengatella malayensis sp. n.

(Figs 468–470)

Length: ♂, 9.0–10.2mm; ♀, 10.8–12.7mm. External characters as in generic description. Male genitalia differ from the similar *metallica* in having the style apical process and aedeagal shaft shorter and the latter more strongly curved basally in lateral aspect. Female pregenital sternite similar to *metallica* in having the posterior margin acutely produced each side of mid-line but in *malayensis* the margin is less insinuate.

DISTRIBUTION. Malaya, Sumatra.

MATERIAL EXAMINED. Holotype ♂, **Malaya**: Selangor, Bukit Kutu, 3400', 13.iii.1931 (BMNH).

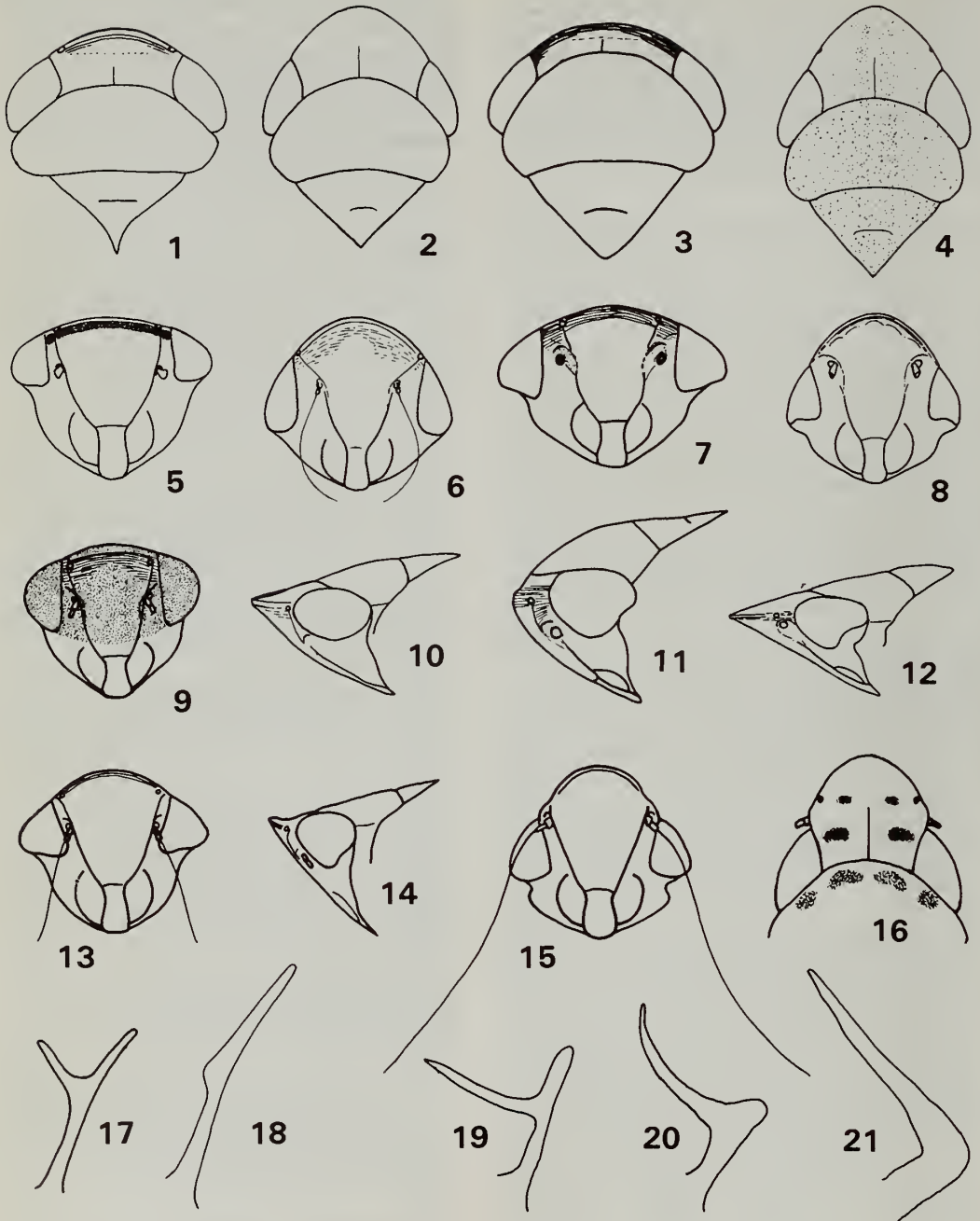
Paratypes. **Sumatra**: 1 ♂, 4 ♂ (BMNH, RNHL, ZMA); **Malaya**: 1 ♂, Perak, 1 ♀, Selangor (BMNH).

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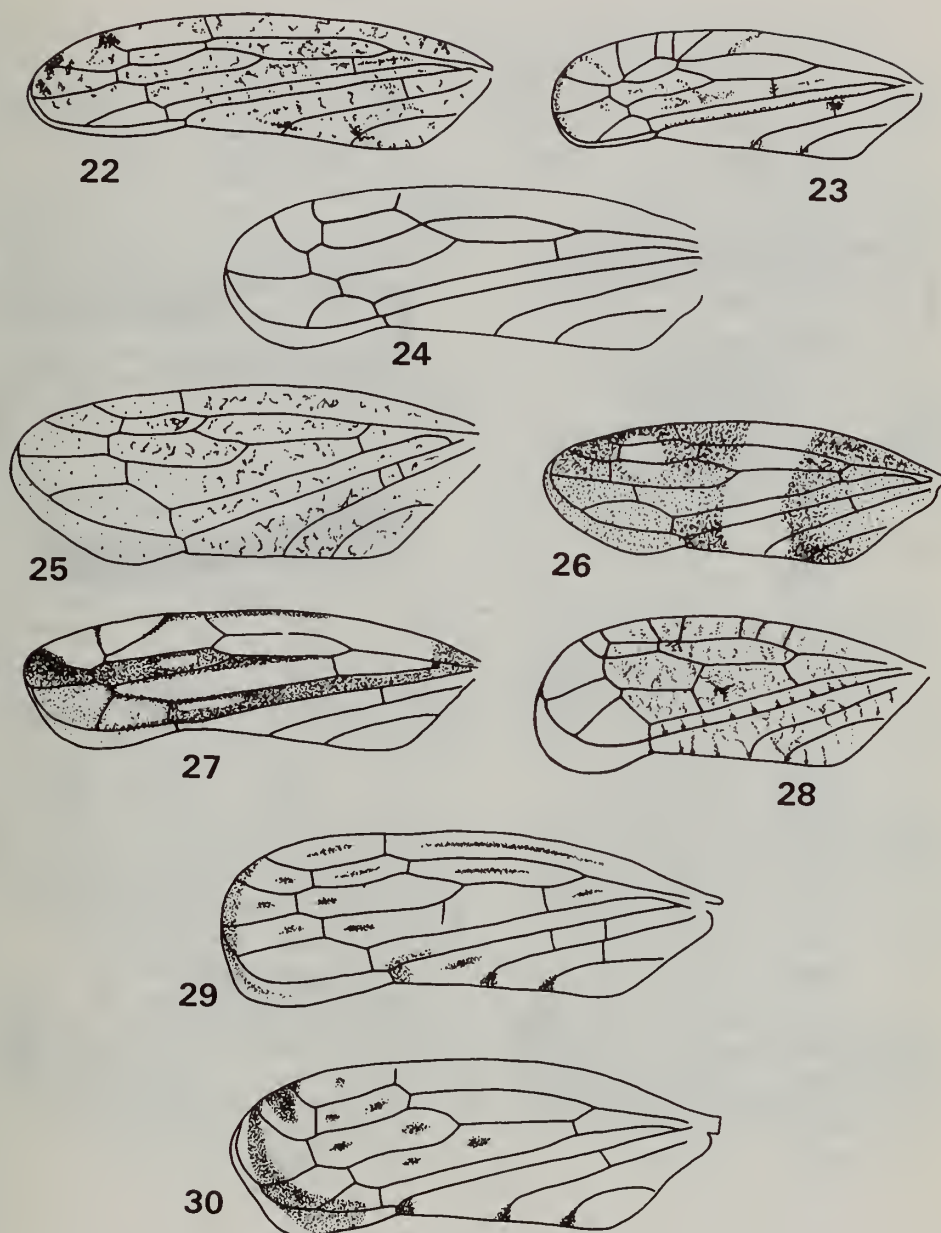
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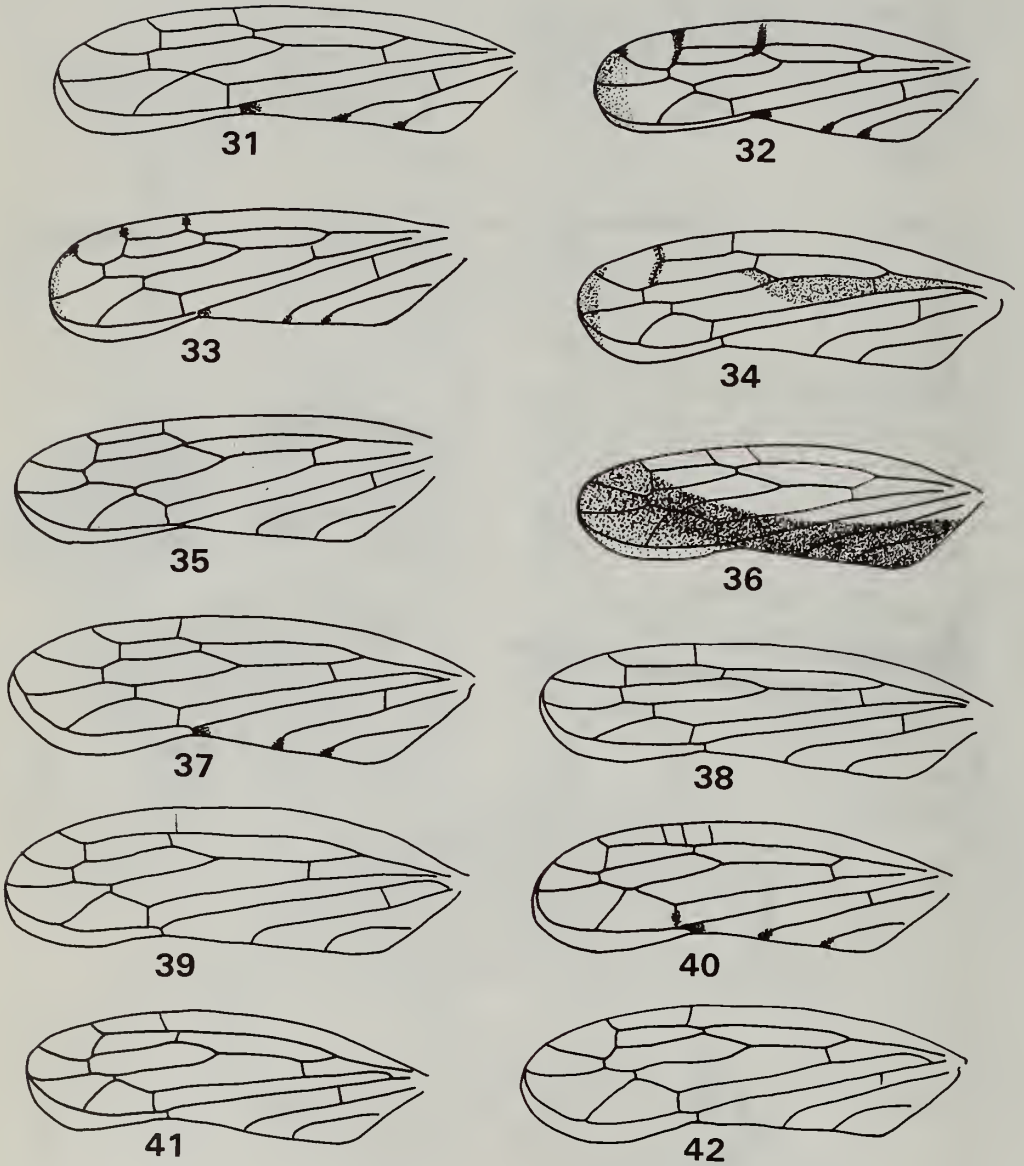
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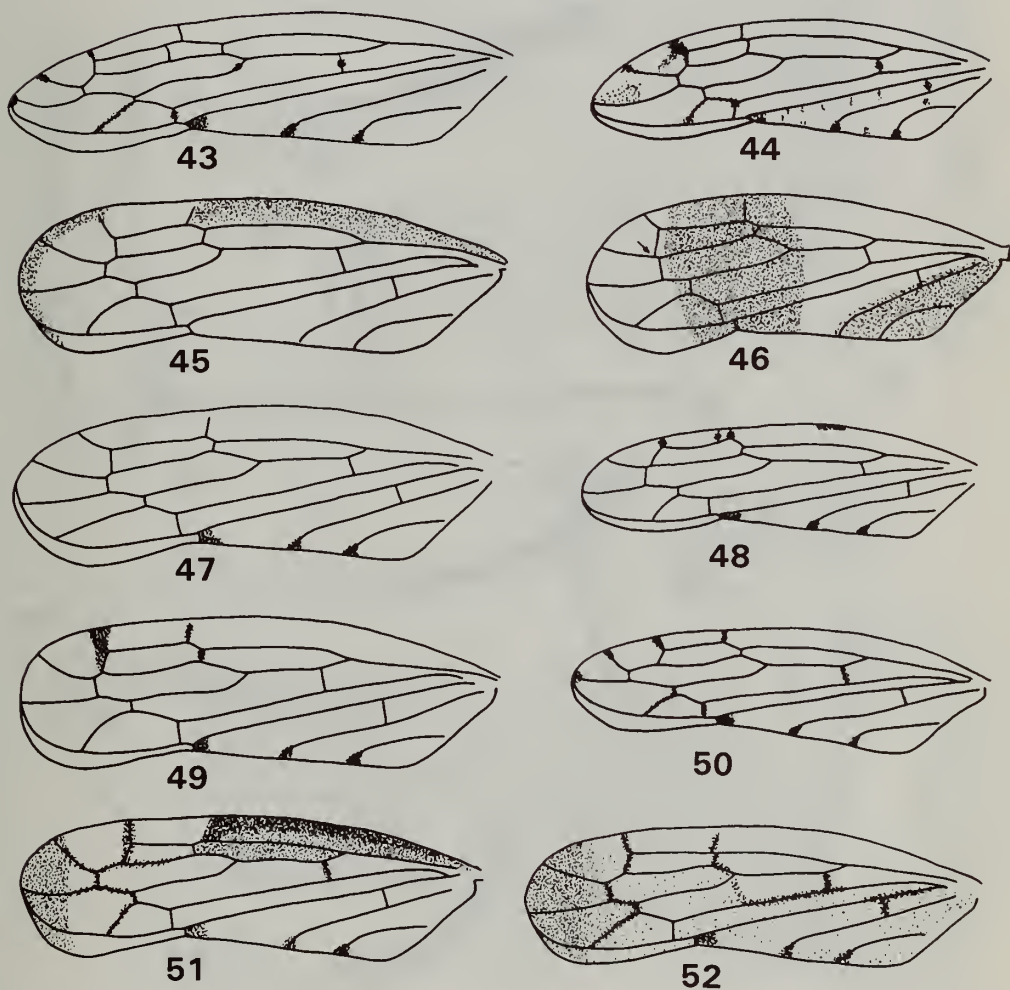
Figs 1–21 Head and thorax of Selenocephalinae. 1–4, head and thorax, dorsal view; 1, *Tambocerus disparatus*; 2, *Hecaloidella nitida*; 3, *Bhatia olivacea*; 4, *Parabolopona guttata*. 5–9, face; 5, *Tambocerus disparatus*; 6, *Hecaloidella nitida*; 7, *Bhatia olivacea*; 8, *Parabolopona guttata*; 9, *Isaca bipars*. 10–12, head and thorax, left lateral view; 10, *Hecaloidella nitida*; 11, *Bhatia olivacea*; 12, *Parabolopona guttata*. 13–14, *Moluccasia notula*; 13, face; 14, head and thorax, left lateral view. 15–16, *Nirvanguina placida*, 15, face; 16, head and pronotum, dorsal view. 17–21, left anterior tentorial branch. 17, *Tambocerus disparatus*; 18, *Selenocephalus griseus*; 19, *Hecaloidella nitida*; 20, *Megabyzus signatus*; 21, *Parabolopona guttata*.



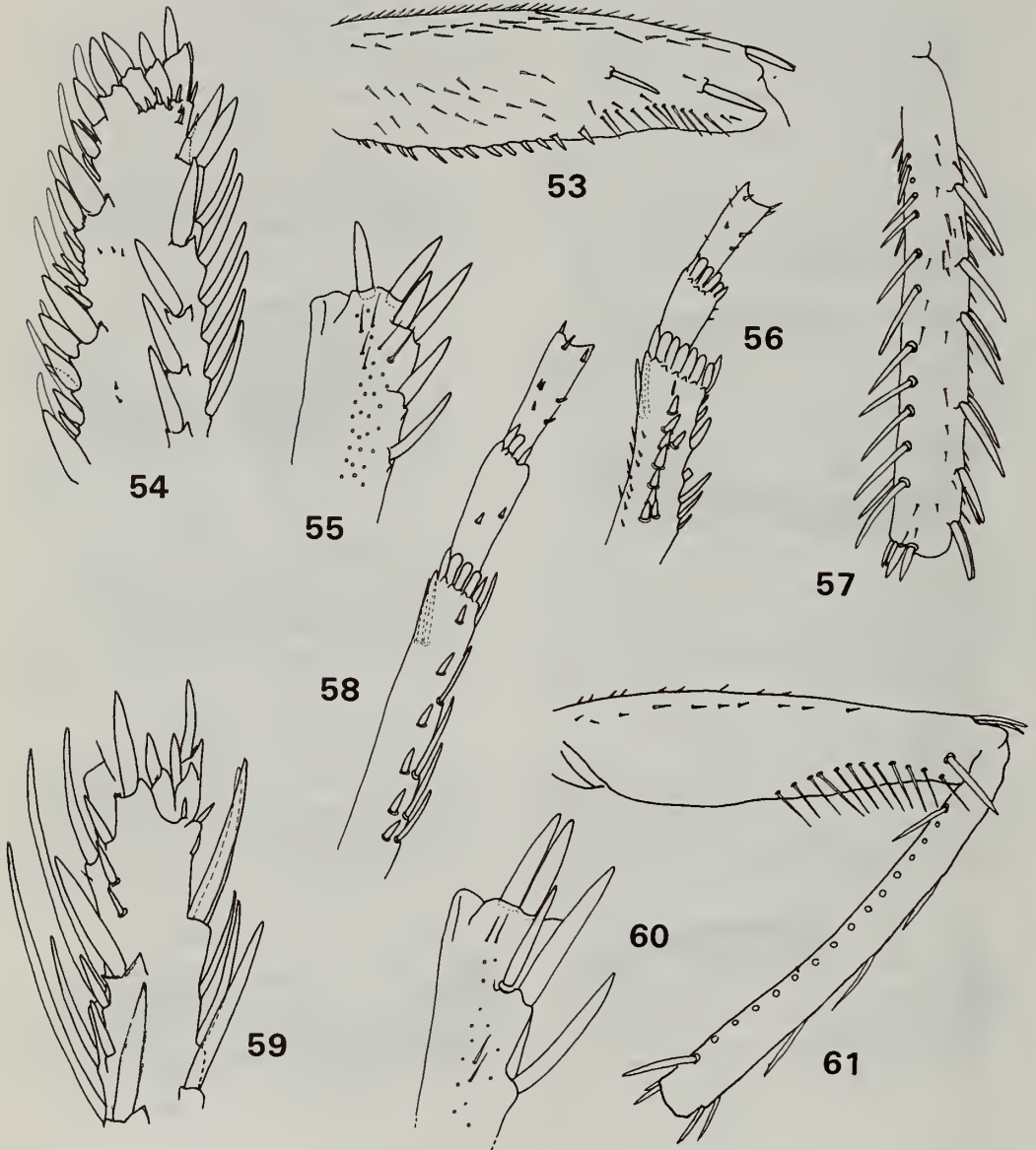
Figs 22–30 Forewings of Selenocephalinae. 22, *Tambocerus plumbeus*; 23, *Moluccasia marmorea*; 24, *Hecaloidella nitida*; 25, *Drabescus remotus*; 26, *Rengatella metallica*; 27, *Lamia cydippe*; 28, *Nirvanguina placida*; 29, *Kutara brunescens*; 30, *Tenompoella difficilis*.



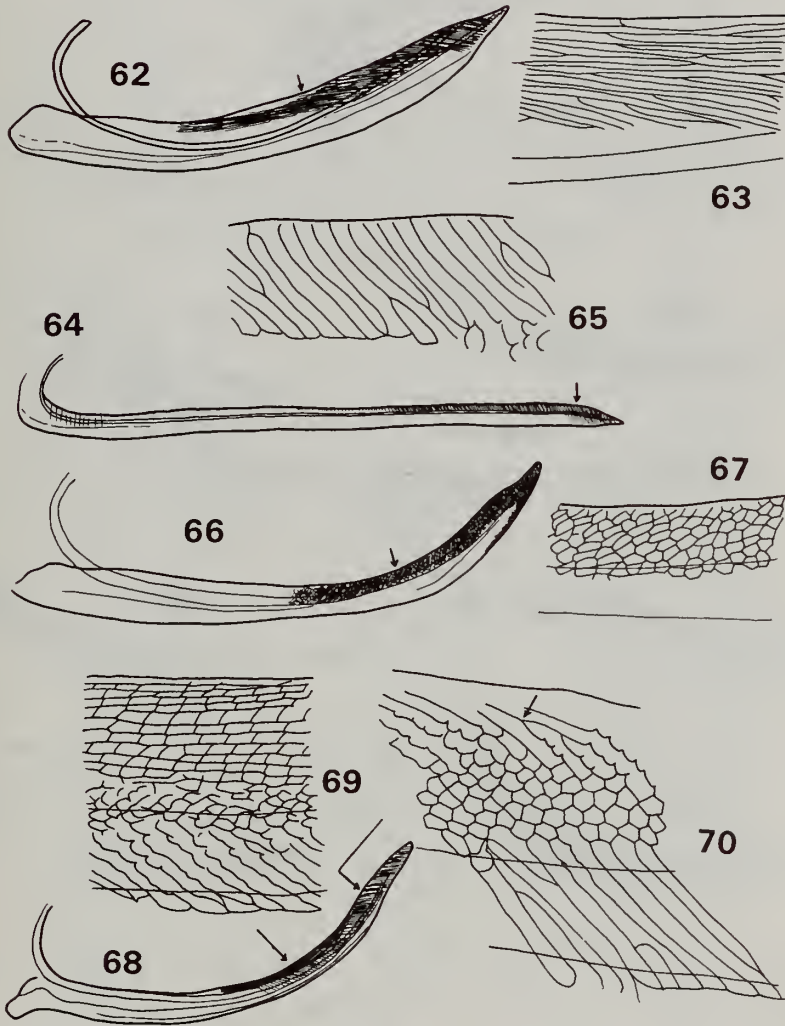
Figs 31–42 Forewings of Paraboloponini. 31, *Carvaka modesta*; 32, *C. formosana*; 33, *C. contempta*; 34, *Hybrasil brani*; 35, *Waigara boninensis*; 36, *Oceanopona croceipennis*; 37, *Bhatia olivacea*; 38, *Athysanopsis salicis*; 39, *Parohinka longiseta*; 40, *Dryadomorpha pallida*; 41, *Karoseefa brevipennis*; 42, *Rhutelorbus merinoi*.



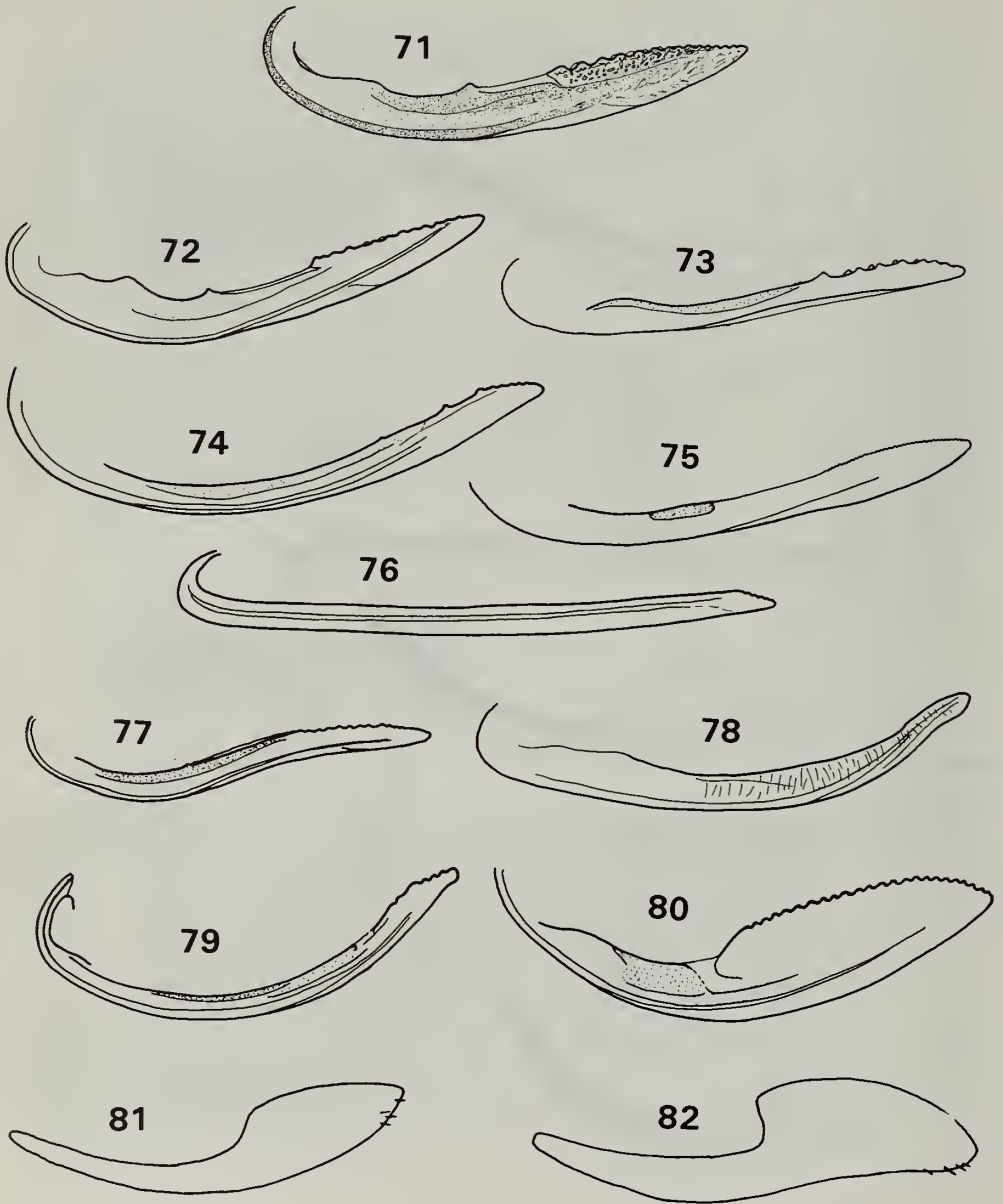
Figs 43–52 Forewings of Paraboloponini. 43, *Parabolopona guttata*; 44, *Megabyzus signandus*; 45, *Mysolis flavidorsum*; 46, *Isaca bipars*; 47, *Welmaya nigrilinea*; 48, *Favintiga camphorae*; 49, *Roxasella losbanosa*; 50, *Omanella barberi*; 51, *Tengatka basilana*; 52, *Sombakidia morisma*.



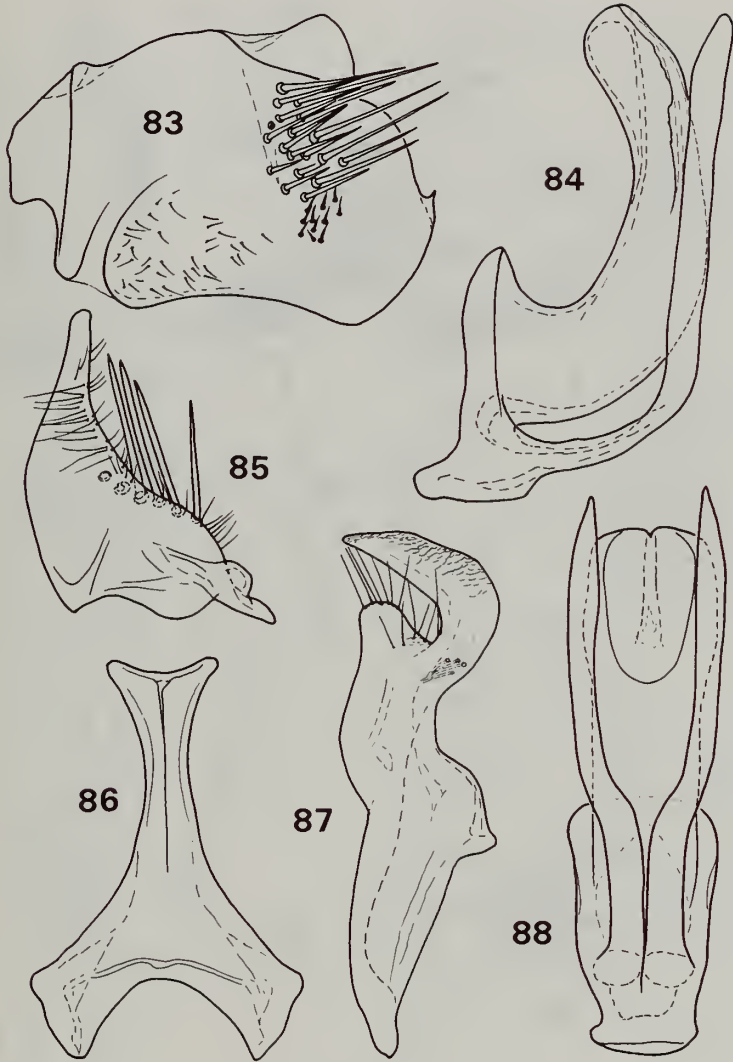
Figs 53–61 Left legs of Selenocephalinae. 53–57, *Selenocephalus griseus*. 53, fore femur; 54, apex of hind tibia; 55, apex of hind femur; 56, hind tarsomeres; 57, fore tibia. 58–61, *Parabolopona guttata*. 58, hind tarsomeres; 59, apex of hind tibia; 60, apex of hind femur; 61, fore femur & tibia, anterior view.



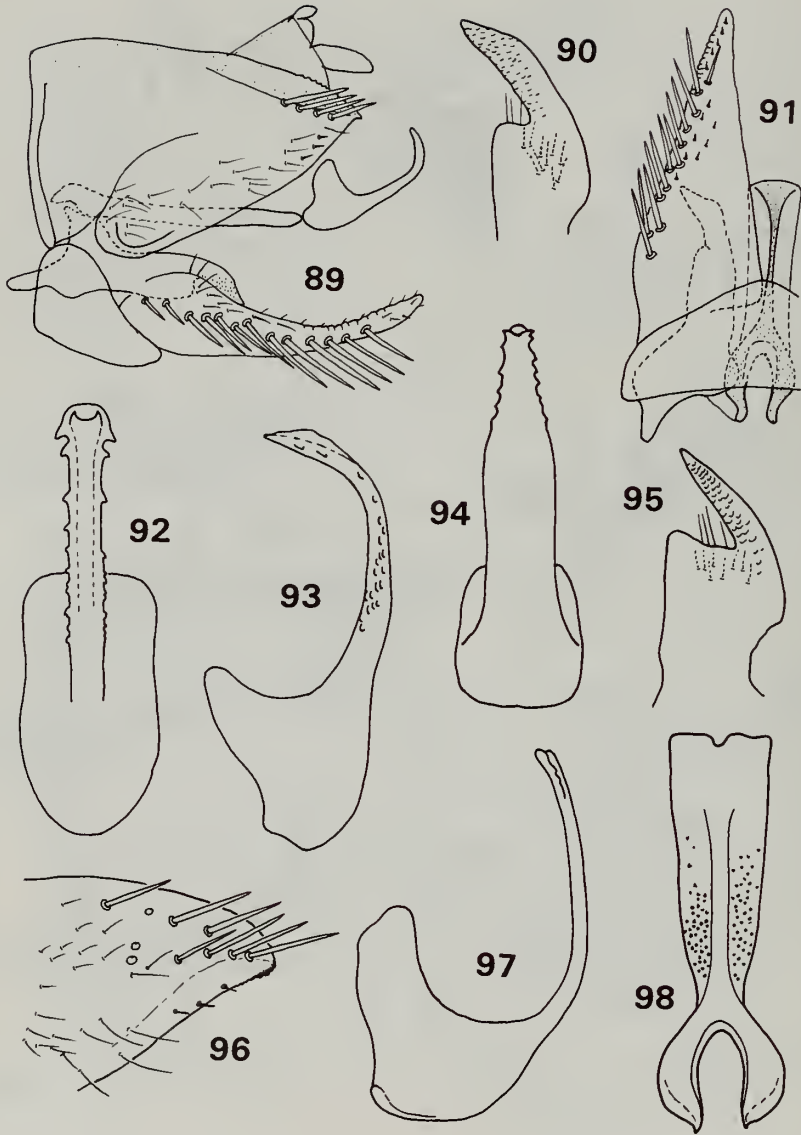
Figs 62–70 First valvulae of Selenocephalinae and Acostemminae, left lateral view. 62, *Bhatia olivacea*; 63, detail of same at position arrowed in Fig. 62; 64, *Omanella* sp.; 65, detail of same at position arrowed in Fig. 64; 66, *Sombakidia morisma*; 67, detail of same at position arrowed in Fig. 66; 68, *Acostemma walkeri*; 69–70, detail of same at position arrowed in Fig. 68; (arrow in Fig. 70 indicates area of strigate or forked sculpture).



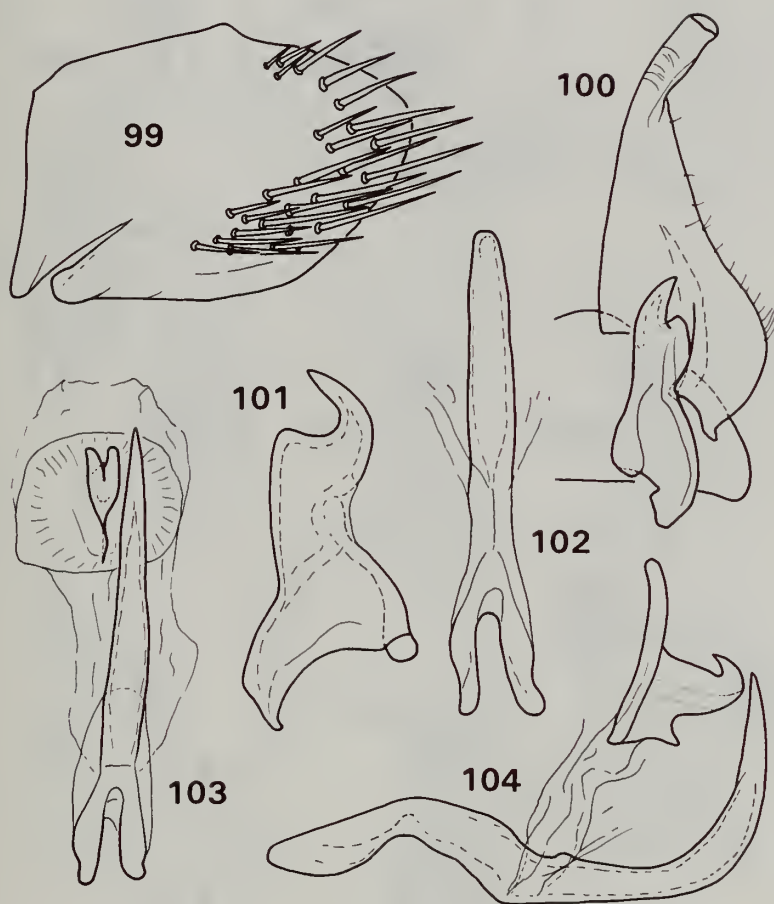
Figs 71–82 Ovipositor valvulae of Selenocephalinae, left lateral view. 71–80, second valvulae; 71, *Bhatia olivacea*; 72, *Drabescus ineffectus*; 73, *Karoseefa brevipenis*; 74, *Hybrasil brani*; 75, *Parabolopona guttata*; 76, *Omanella* sp.; 77, *Favintiga camphorae*; 78, *Sombakidia morisma*; 79, *Lamia cydippe*; 80, *Nirvanguina placida*. 81–82, third valvulae; 81, *Lamia cydippe*; 82, *Nirvanguina placida*.



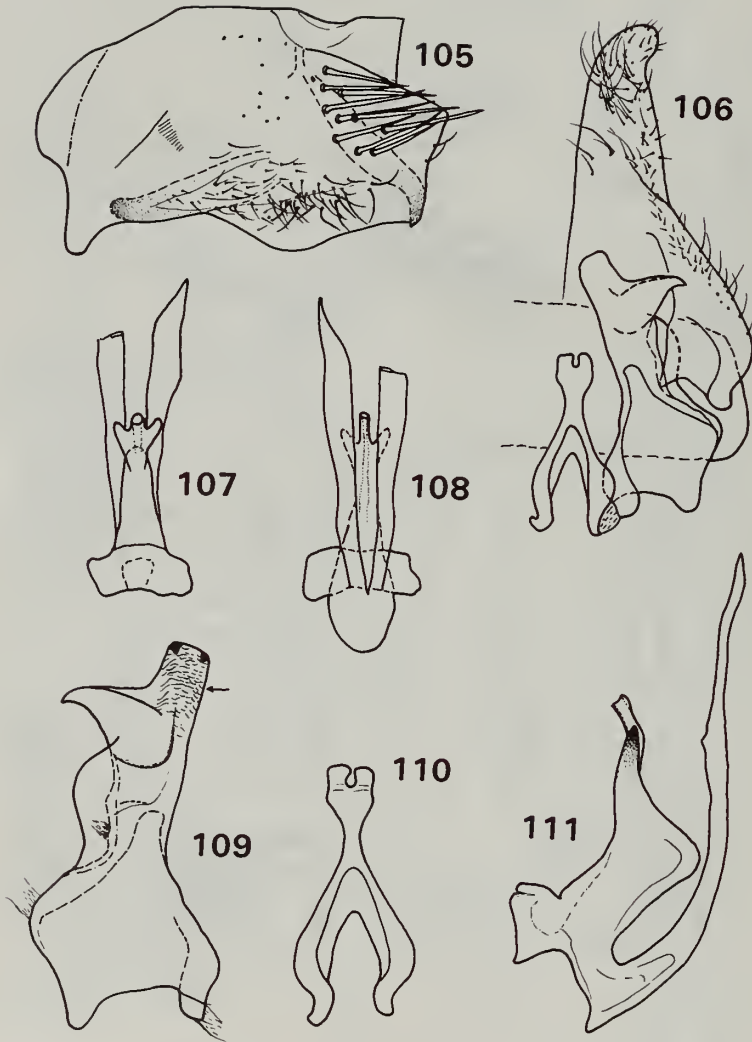
Figs 83–88 Male genitalia of *Moluccasia marmorea*; 83, pygophore, left lateral view; 84 aedeagus, left lateral view; 85, subgenital plate, dorsal view; 86, connective, ventral view; 87, style, ventral view; 88, aedeagus, posterior view.



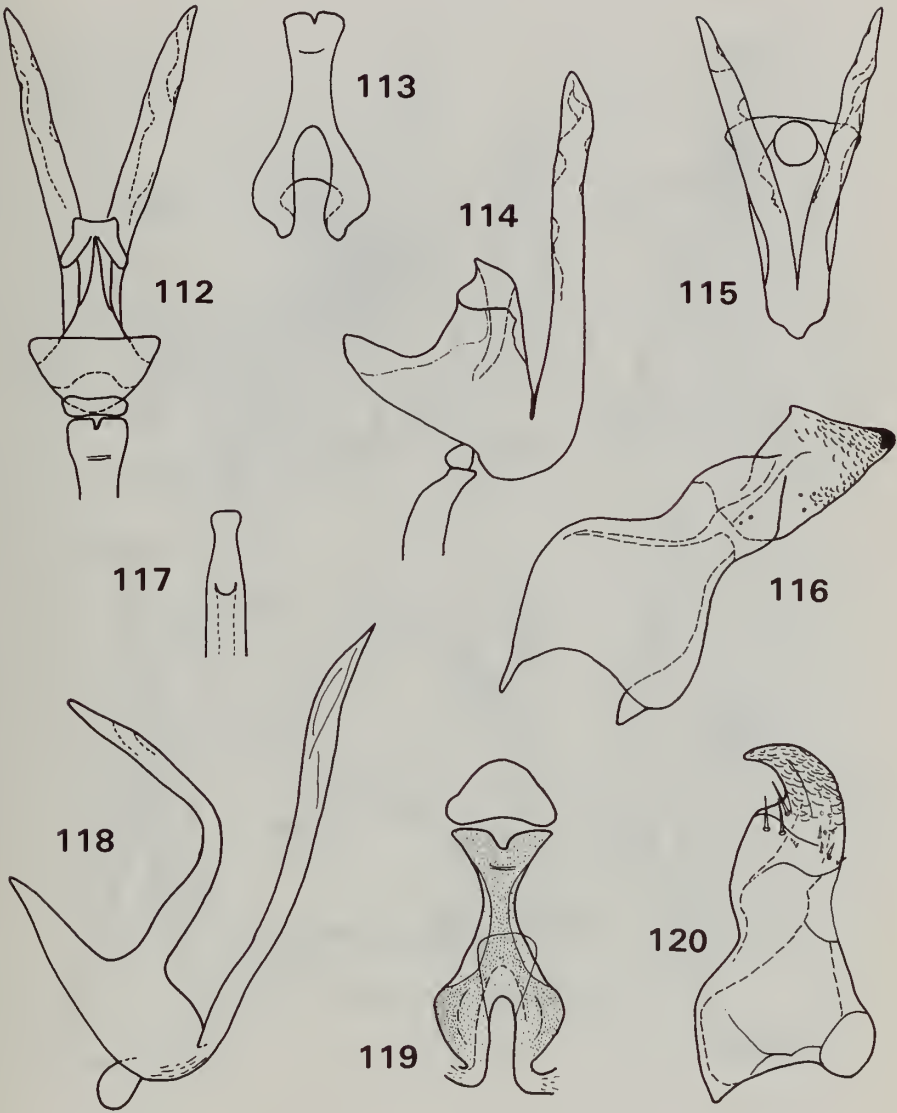
Figs 89–98 Male genitalia of *Tambocerus* species. 89–93, *T. disparatus*; 89, genital capsule, left lateral view; 90, apex of style; 91, Subgenital plate, valve, connective and style, ventral view; 92–93, aedeagus, posterior view and left lateral view respectively. 94–98, *T. plumbeus*; 94, aedeagus, posterior view; 95, style apex; 96, pygophore lobe, left lateral view; 97, aedeagus, left lateral view; 98, connective, ventral view.



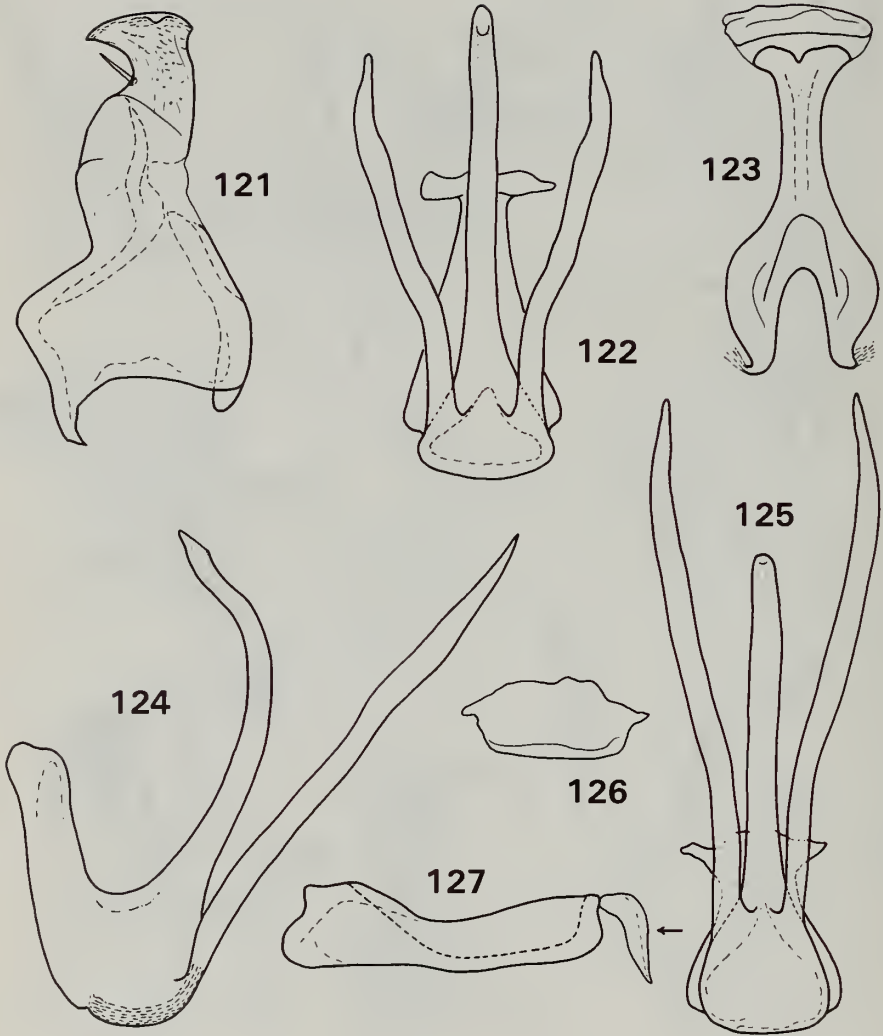
Figs 99–104 Male genitalia of *Hecaloidella nitida*; 99, pygophore, left lateral view; 100, subgenital plate, valve and style, dorsal view; 101, style, ventral view; 102, connective, dorsal view; 103–104, aedeagus and connective, ventral and left lateral view, respectively.



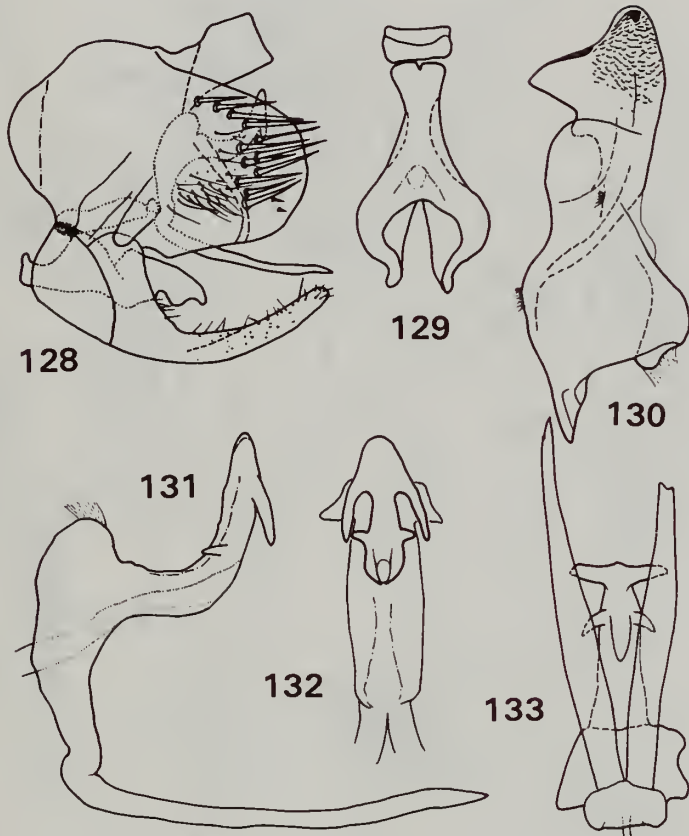
Figs 105–111 Male genitalia of *Bhatia olivacea*. 105, pygophore, left lateral view; 106, Subgenital plate, valve, connective and style, dorsal view; 107–108, aedeagus, anterior and posterior view, respectively; 109, style, ventral view; 110, connective, ventral view; 111, aedeagus, left lateral view.



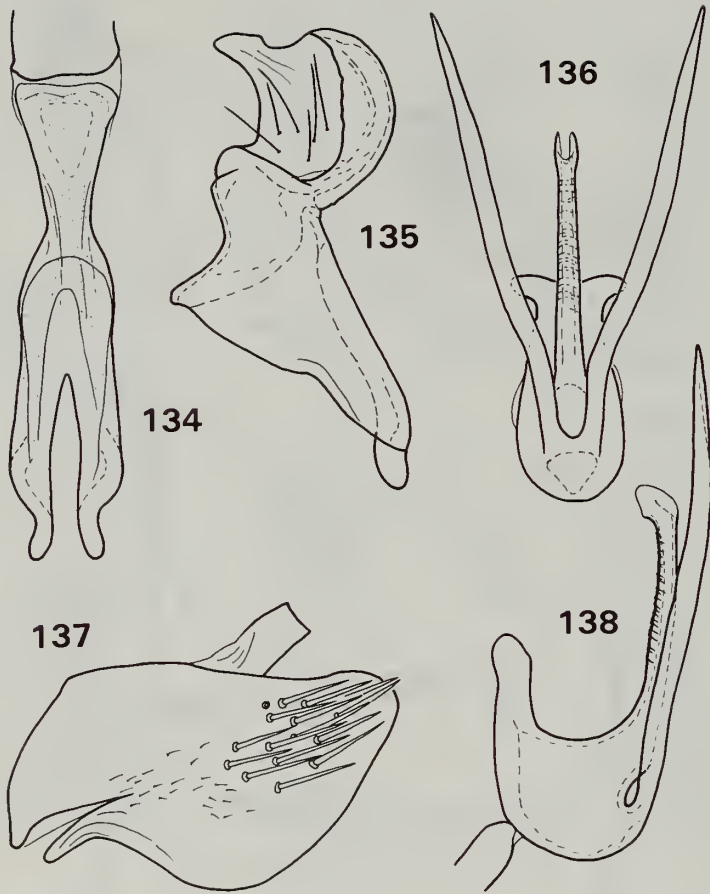
Figs 112-120 Male genitalia of *Bhatia* species. 112-116, *B. distanti*, 112, aedeagus, anterior view; 113, connective, ventral view; 114, aedeagus and apex of connective, left lateral view; 115, aedeagus, posterior view; 116, style, ventral view. 117-120, *B. metcalfi*, 117, apex of aedeagal shaft, posterior view; 118, aedeagus and apical sclerite of connective, left lateral view; 119, connective, ventral view; 120, style, ventral view.



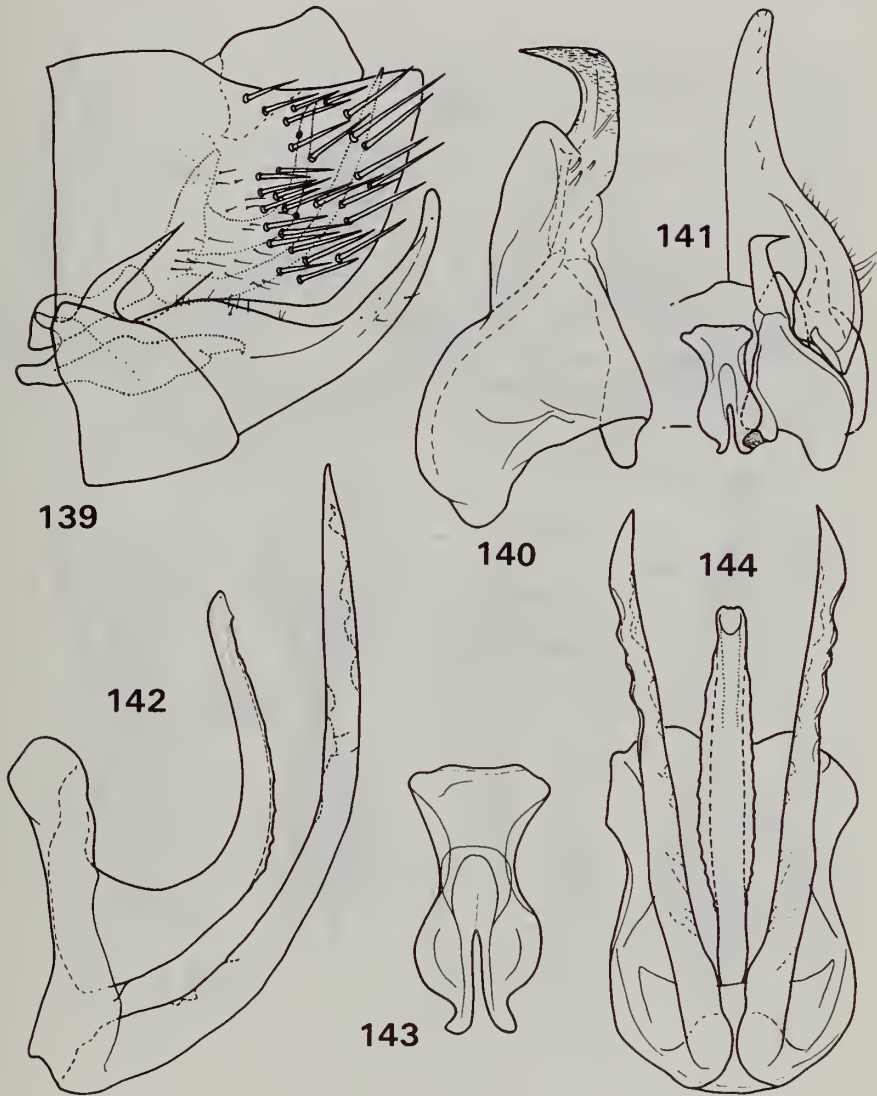
Figs 121–127 *Bhatia guamensis*. 121, style; 122, aedeagus, posteroventral view; 123, connective; 124–125, aedeagus, left lateral and posterior view respectively; 126, sclerite of connective viewed from position arrowed in Fig. 127; 127, connective, left lateral view.



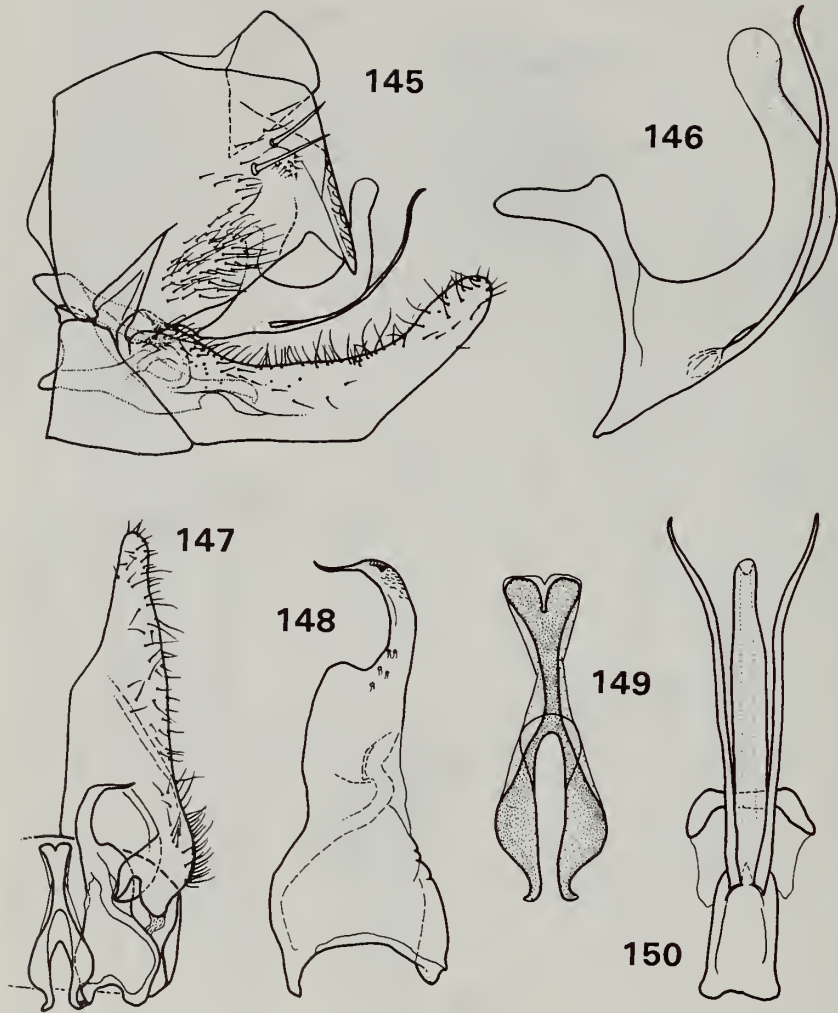
Figs 128–133 Male genitalia of *Bhatia satsumensis*. 128, genital segment, left lateral view; 129, connective, ventral view; 130, style, ventral view; 131–133 aedeagus, left lateral, posterior and ventral view, respectively.



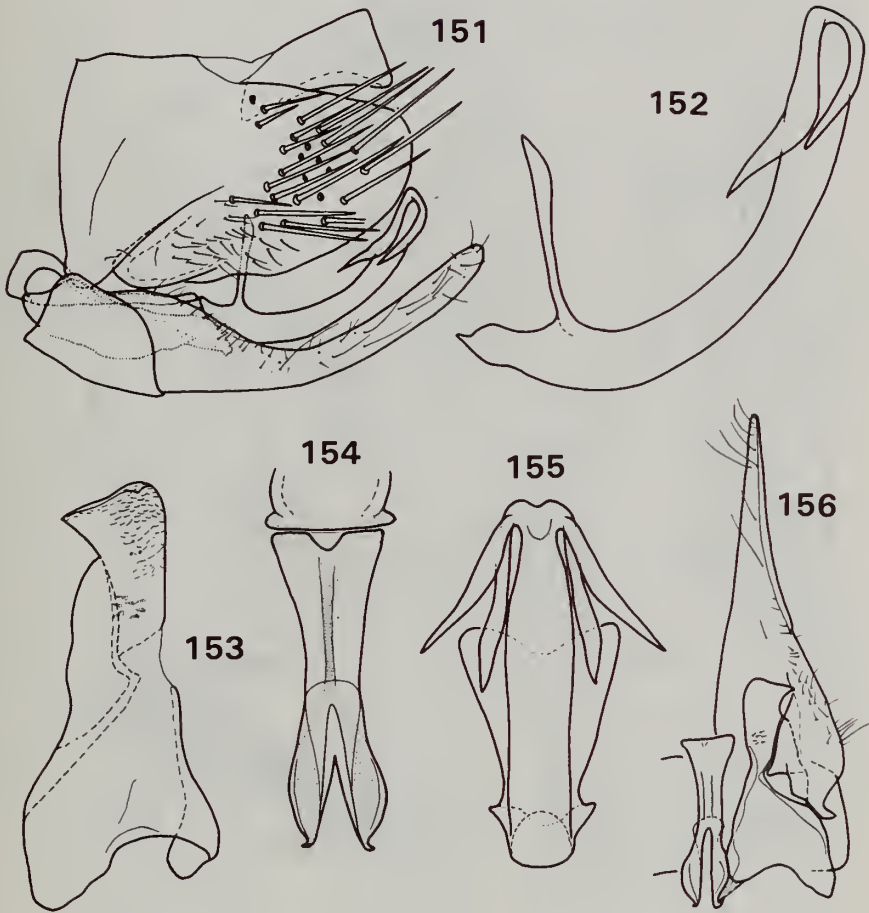
Figs 134–138 Male genitalia of *Bhatia javana*. 134, connective and base of aedeagus, ventral view; 135, style, ventral view; 136, aedeagus, posterior view; 137, pygophore, and tenth segment left lateral view; 138, aedeagus, left lateral view.



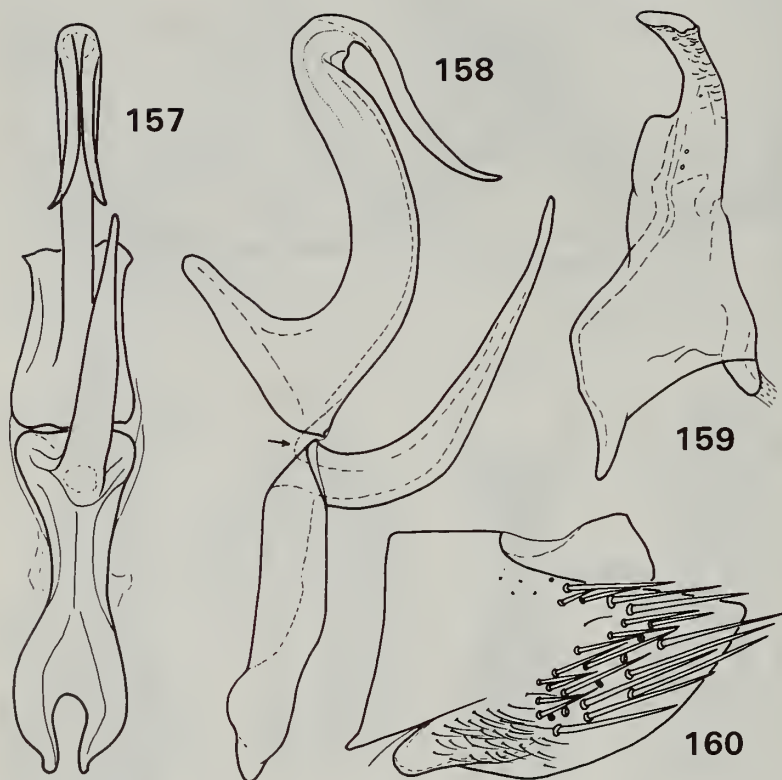
Figs 139–144 Male genitalia of *Bhatia koreana*. 139, genital capsule, left lateral view; 140, style, ventral view; 141, subgenital plate, valve, style and connective, dorsal view; 142, aedeagus, left lateral view; 143, connective, ventral view; 144, aedeagus, posterior view.



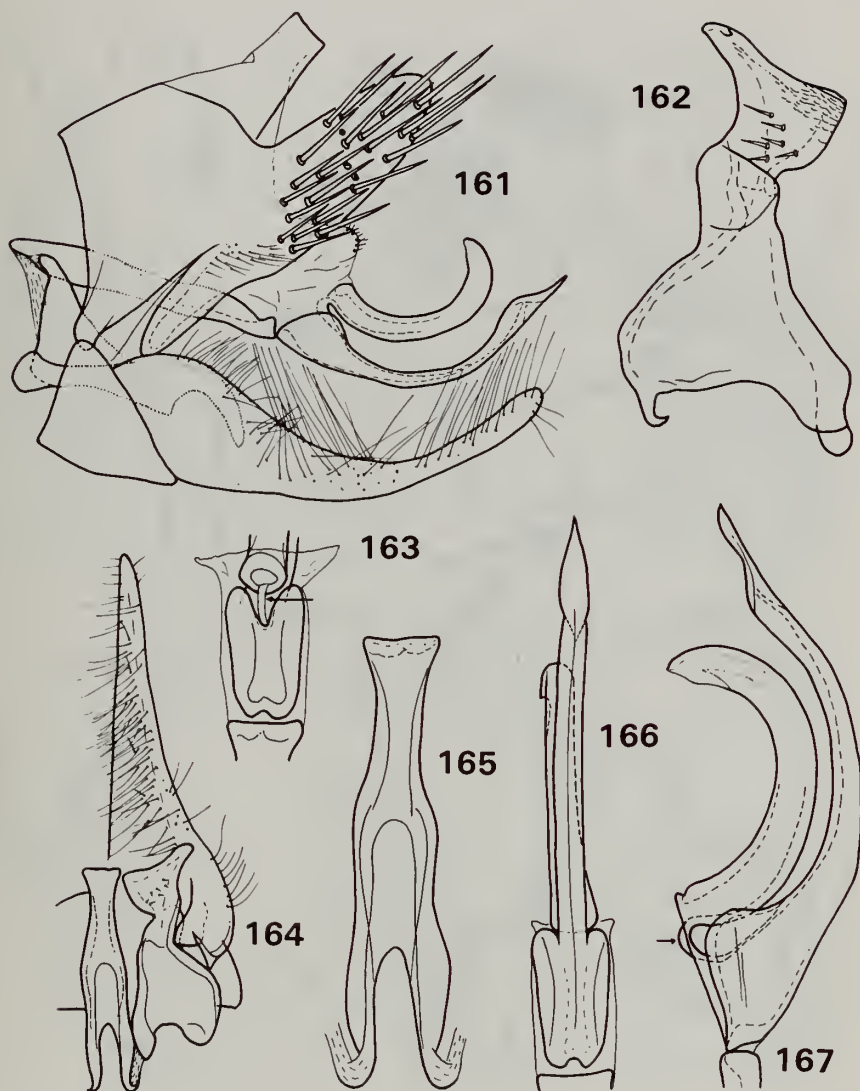
Figs 145–150 Male genitalia of *Athysanopsis salicis*. 145, genital capsule, left lateral view; 146, aedeagus, left lateral view; 147, valve, subgenital plate, style and connective, dorsal view; 148, style, ventral view; 149, connective, ventral view; 150, aedeagus, posterior view.



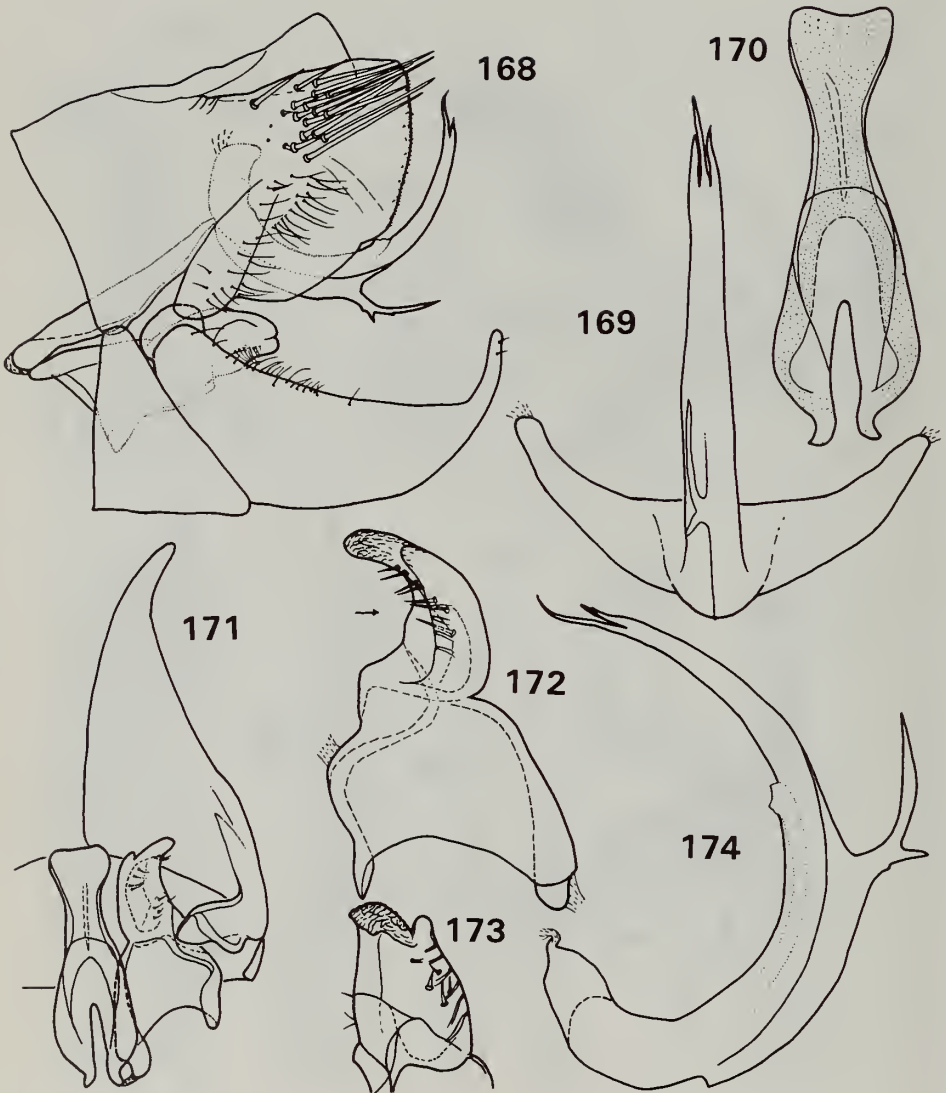
Figs 151–156 Male genitalia of *Carvaka formosana*. 151, genital capsule, left lateral view; 152, aedeagus, left lateral view; 153, style, ventral view; 154, connective and base of aedeagus, ventral view; 155, aedeagus; 156, valve, subgenital plate, connective and style, dorsal view.



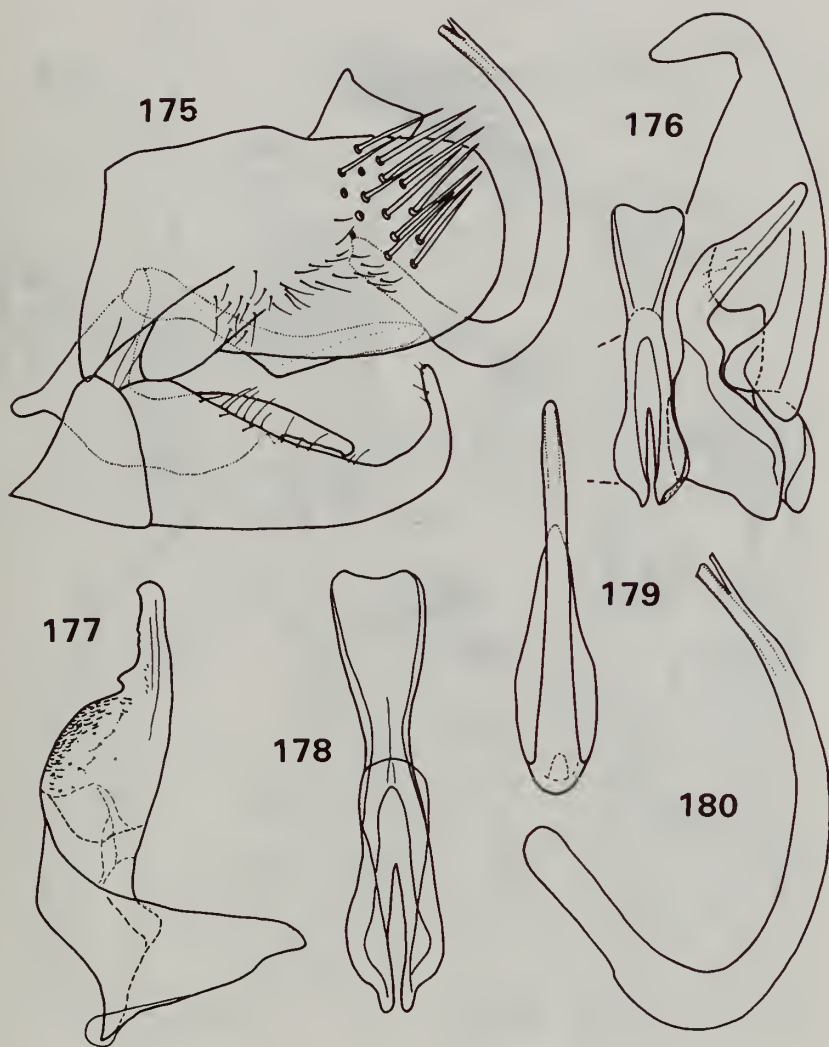
Figs 157–160 Male genitalia of *Carvaka contempta*. 157–158, connective and aedeagus, posterior and left lateral view, respectively; 159, style ventral view; 160, pyrophore and tenth segment, left lateral view.



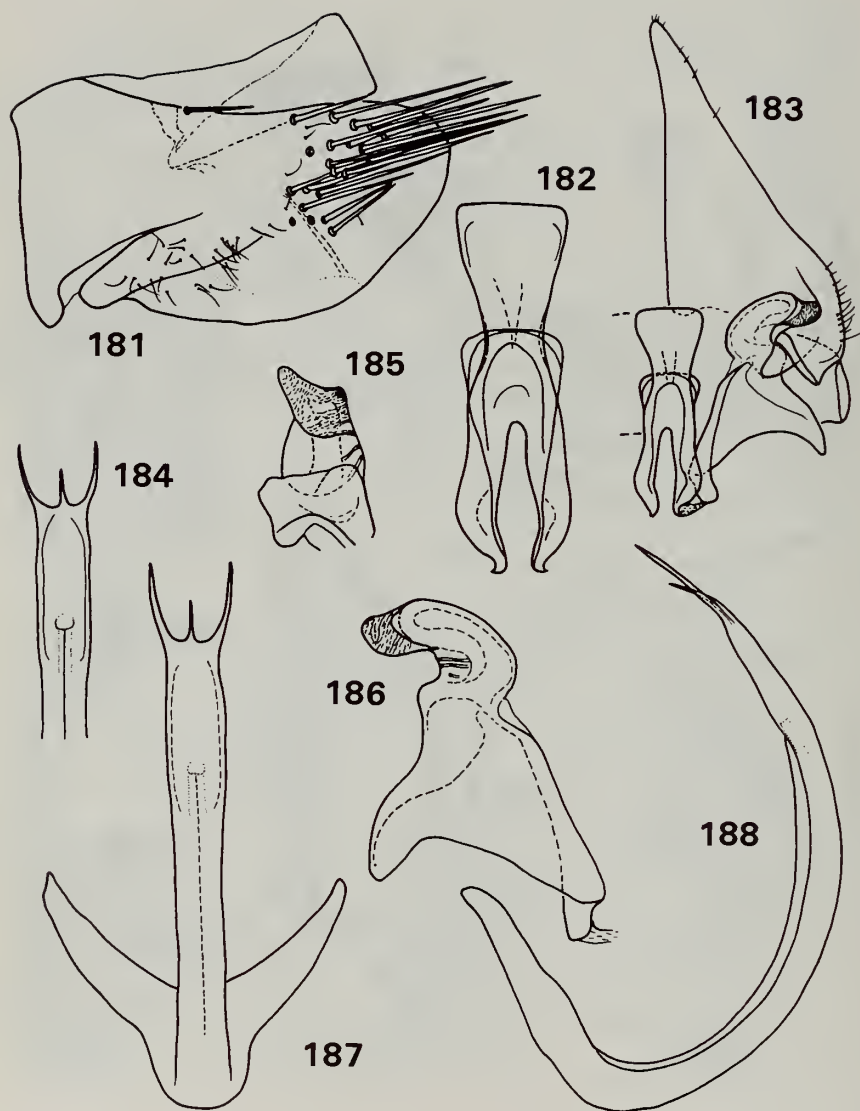
Figs 161–167 Male genitalia of *Hyrazil brani*. 161, genital capsule, left lateral view; 162, style, ventral view; 163, base of aedeagus and apex of connective, dorsal view; 164, valve, subgenital plate, connective and style, dorsal view; 165, connective, ventral view; 166–167, aedeagus and apex of connective, posterior and left lateral view, respectively.



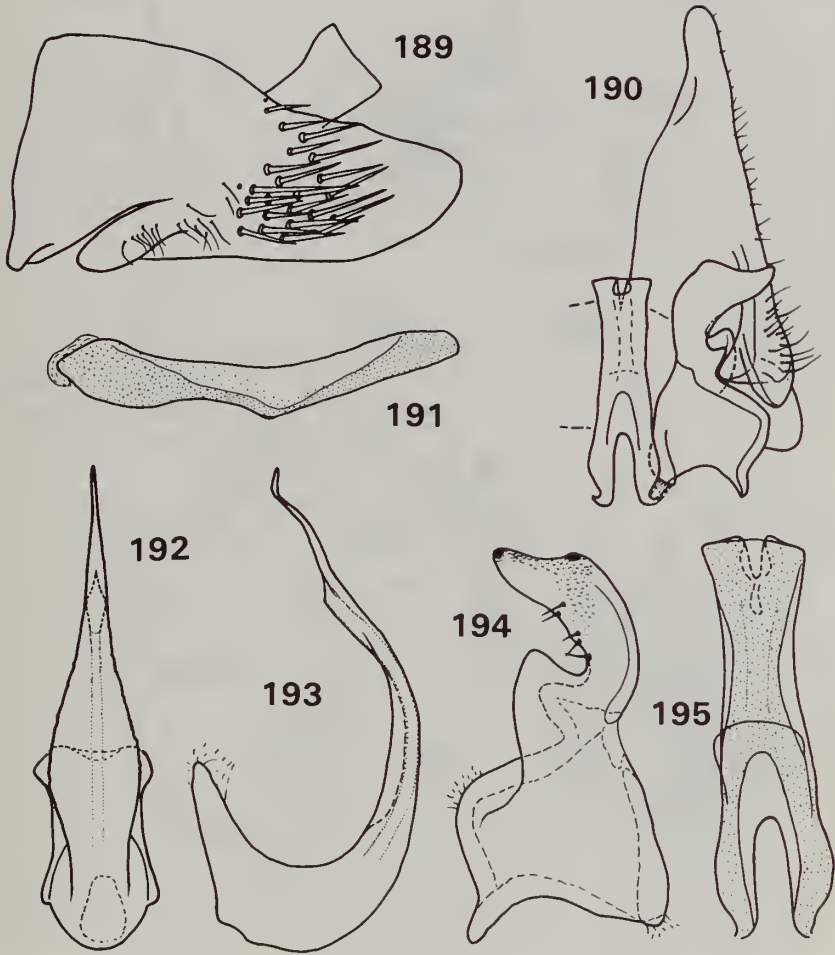
Figs 168–174 Male genitalia of *Kutara brunnescens*. 168, genital capsule, left lateral view; 169, aedeagus, posterior view; 170, connective, ventral view; 171, valve, subgenital plate, connective and style, dorsal view; 172, style, ventral view; 173, apex of same in direction arrowed in Fig. 172; 174, aedeagus, left lateral view.



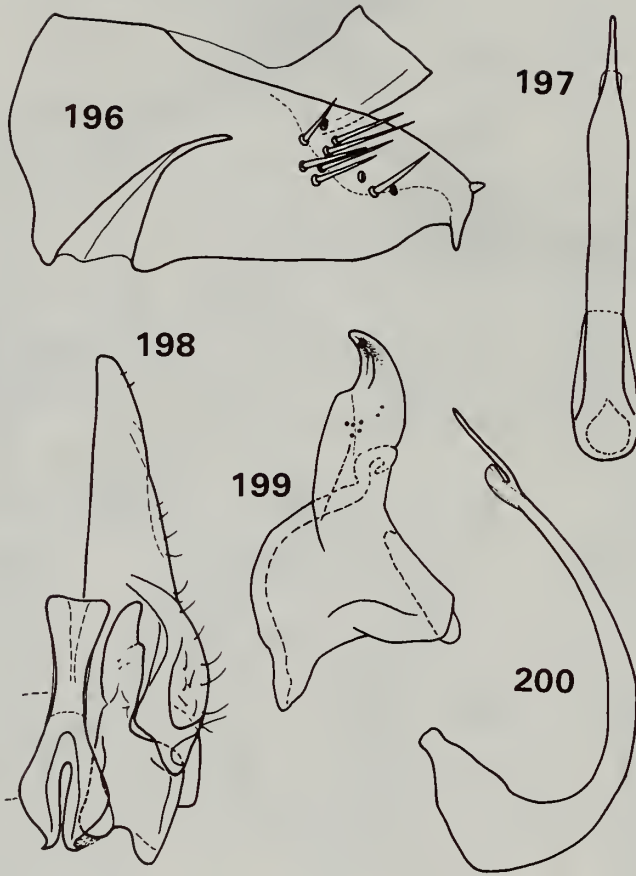
Figs 175–180 Male genitalia of *Kutara transversa*. 175, genital capsule, left lateral view. 176, valve, subgenital plate, connective and style, dorsal view; 177, style, ventral view; 178, connective, ventral view; 179–180, aedeagus, posterior and left lateral view, respectively.



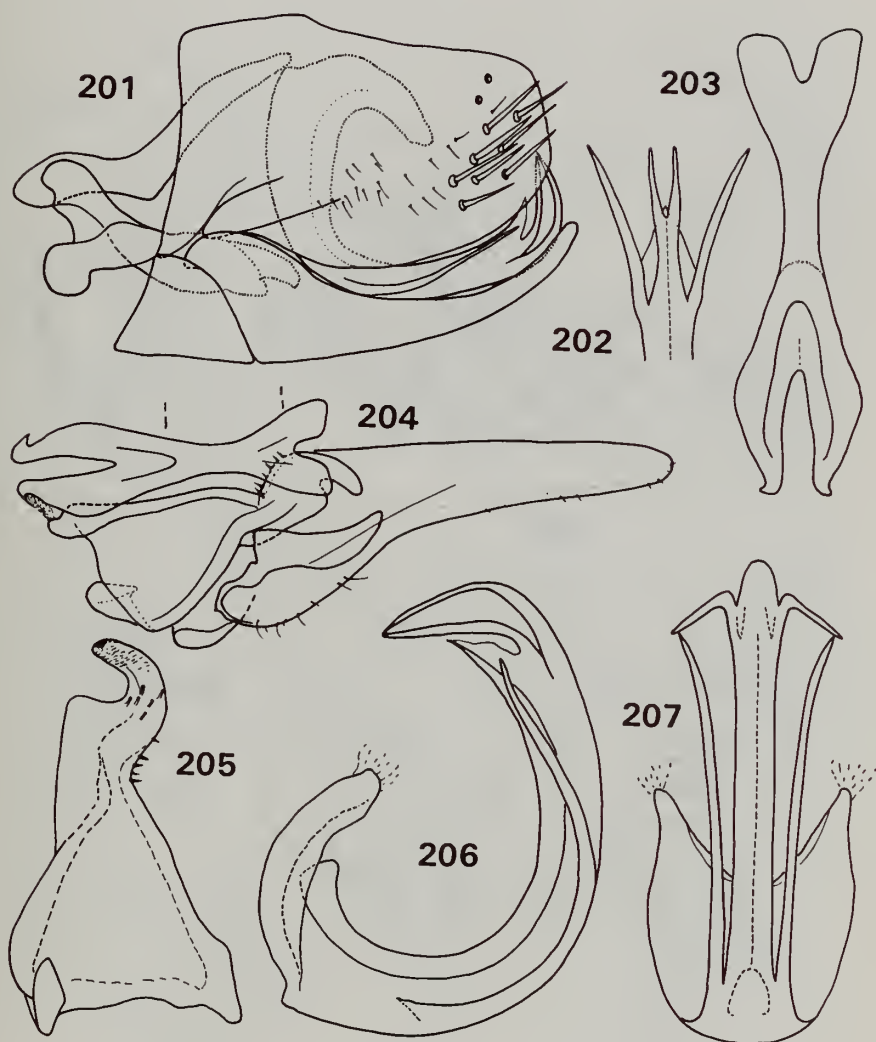
Figs 181–188 Male genitalia of *Kutara producta*. 181, pygophore, left lateral view; 182, connective, ventral view; 183, valve, subgenital plate, connective and style, dorsal view; 184, apex of aedeagus, anterior view; 185, apex of style; 186, left style, ventral view; 187–188, aedeagus, posterior and left lateral view, respectively.



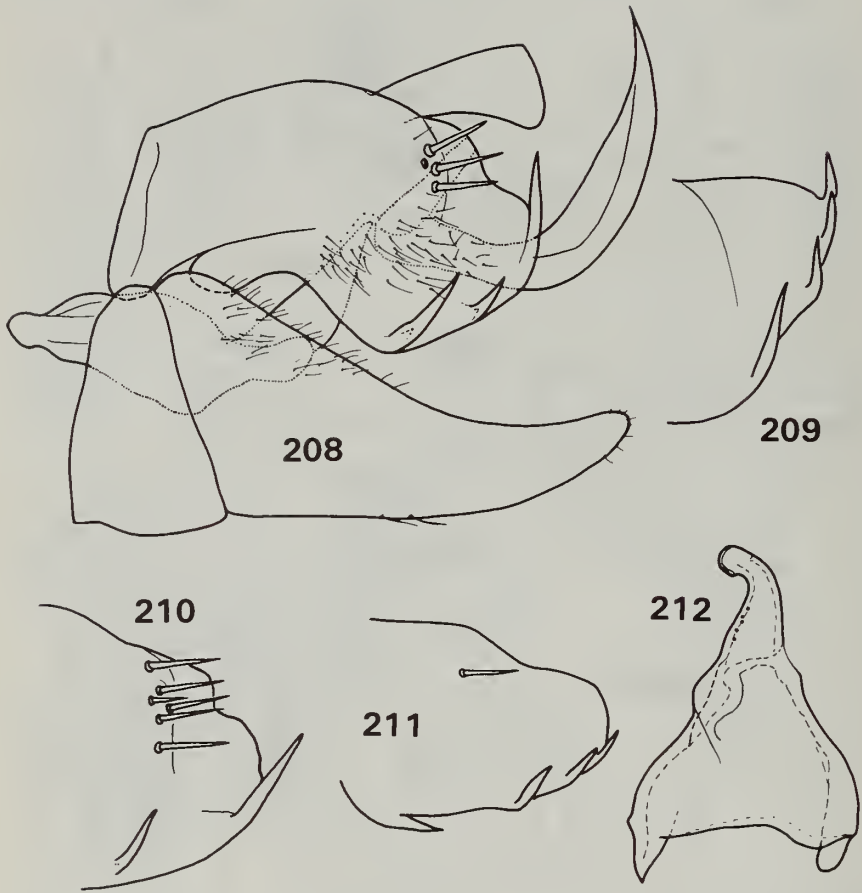
Figs 189–195 Male genitalia of *Kutara sinensis*. 189, pygophore and tenth segment, left lateral view; 190, valve, subgenital plate, connective and style, dorsal view; 191, connective, left lateral view; 192–193, aedeagus, posterior and left lateral view respectively, 194, style, ventral view; 195, connective, ventral view.



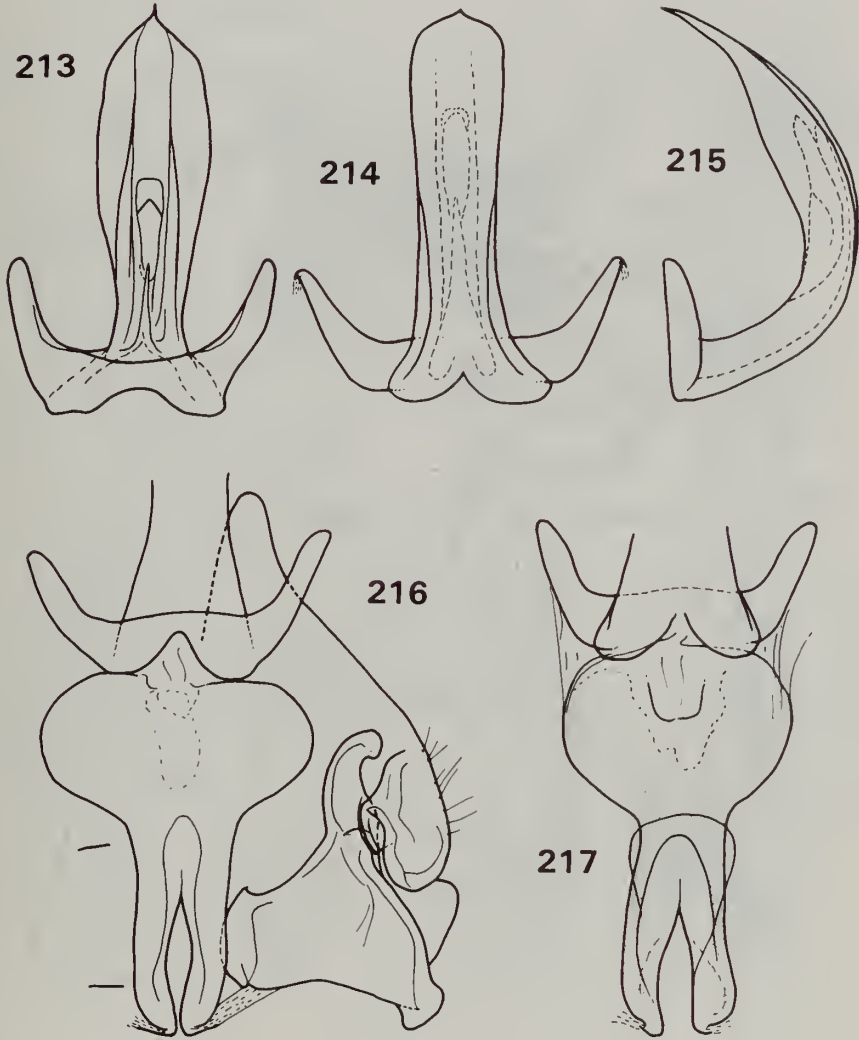
Figs 196–200 Male genitalia of *Kutara costalis*. 196, pygophore, left lateral view; 197, aedeagus, posterior view; 198, valve, subgenital plate, connective and style, dorsal view; 199, style, ventral view; 200, aedeagus, left lateral view.



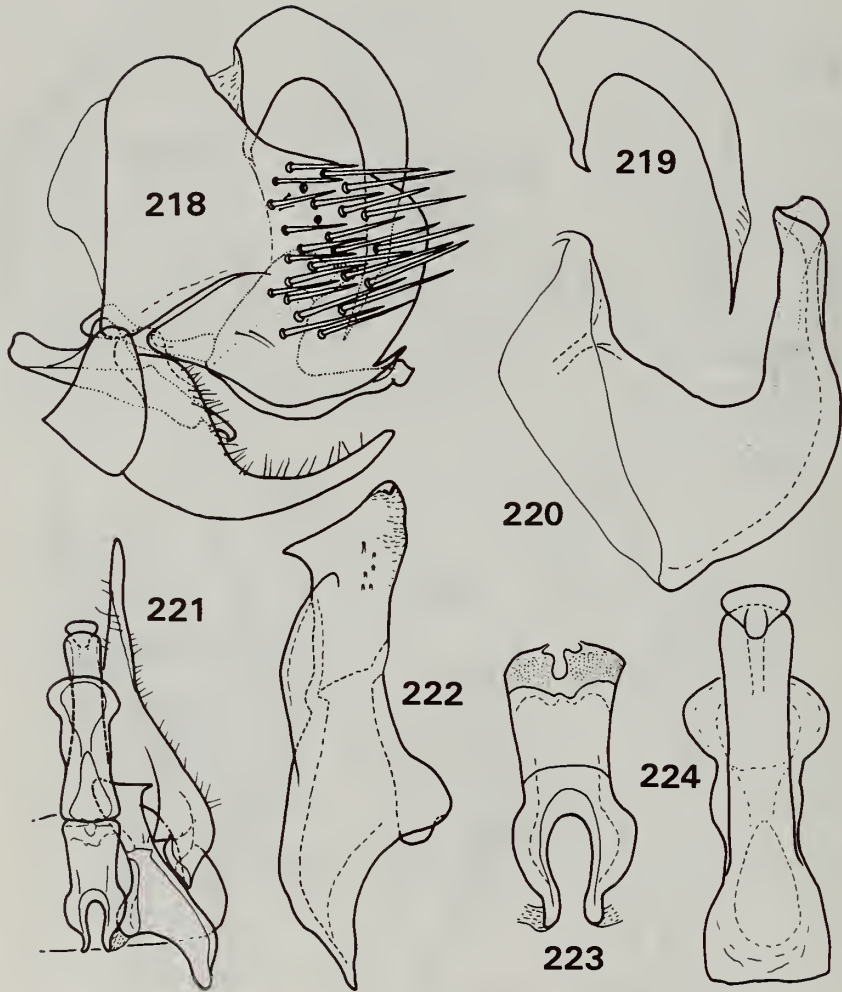
Figs 201–207 Male genitalia of *Kutara griseascens*. 201, genital capsule, left lateral view; 202, apex of aedeagus, dorsoposterior view; 203, connective, ventral view; 204, valve, subgenital plate, connective and style, dorsal view; 205, style, ventral view; 206–207, aedeagus, left lateral and posterior view respectively.



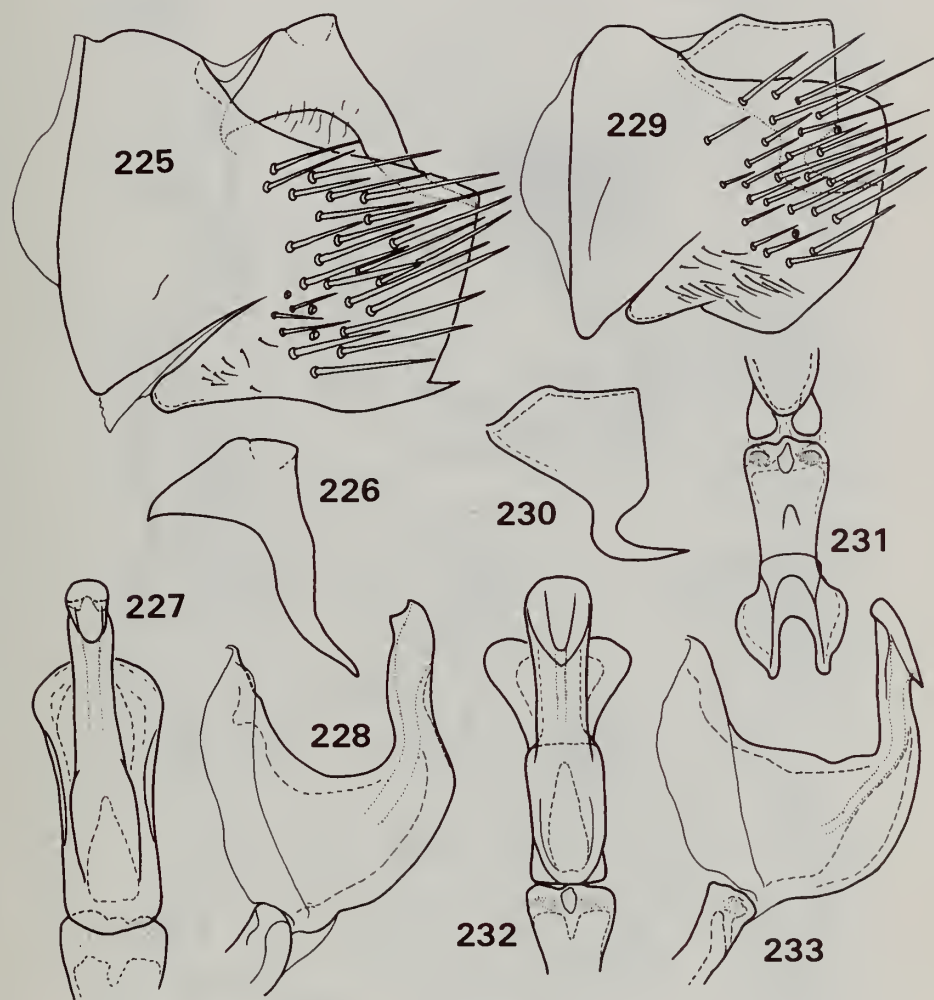
Figs 208–212 Male genitalia of *Drabescoides nuchalis*. 208, genital capsule, left lateral view; 209–211, variation of pygopore lobe of same; 212, style, ventral view.



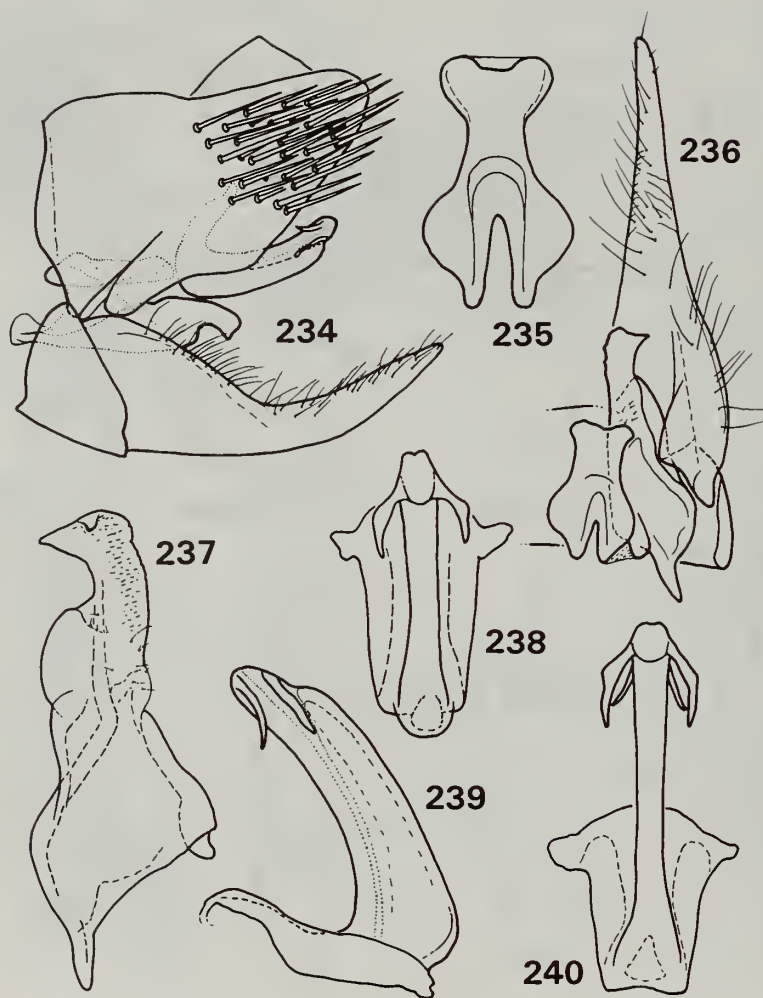
Figs 213–217 *Drabescoides nuchalis*. 213–215 aedeagus, anteroventral, posteroventral and left lateral view, respectively; 216, connective, base of aedeagus, subgenital plate and style, dorsal view; 217, connective and base of aedeagus, ventral view.



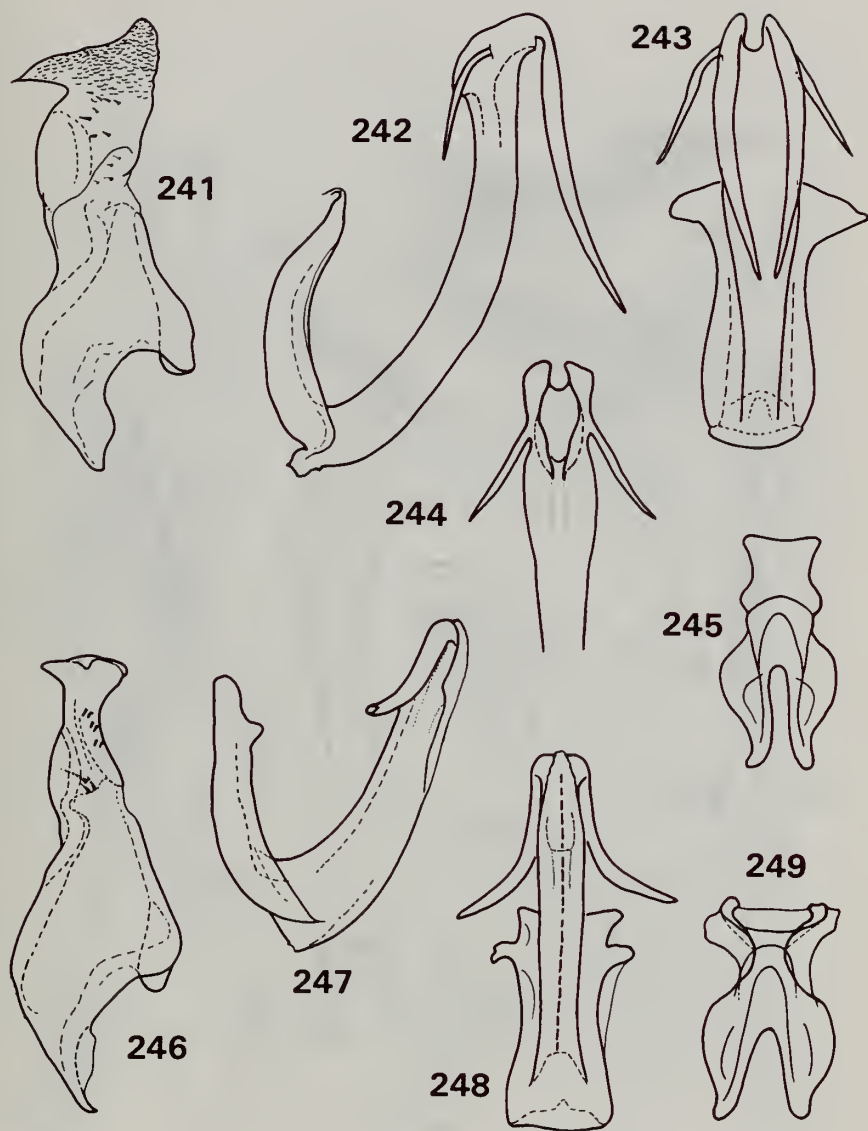
Figs 218–224 Male genitalia of *Isaca bipars*. 218, genital capsule, left lateral view; 219, tenth segment, left lateral view; 220, aedeagus, left lateral view; 221, valve, subgenital plate, connective, aedeagus & style, dorsal view; 222, style, ventral view; 223, connective, ventral view; 224, aedeagus, posterior view.



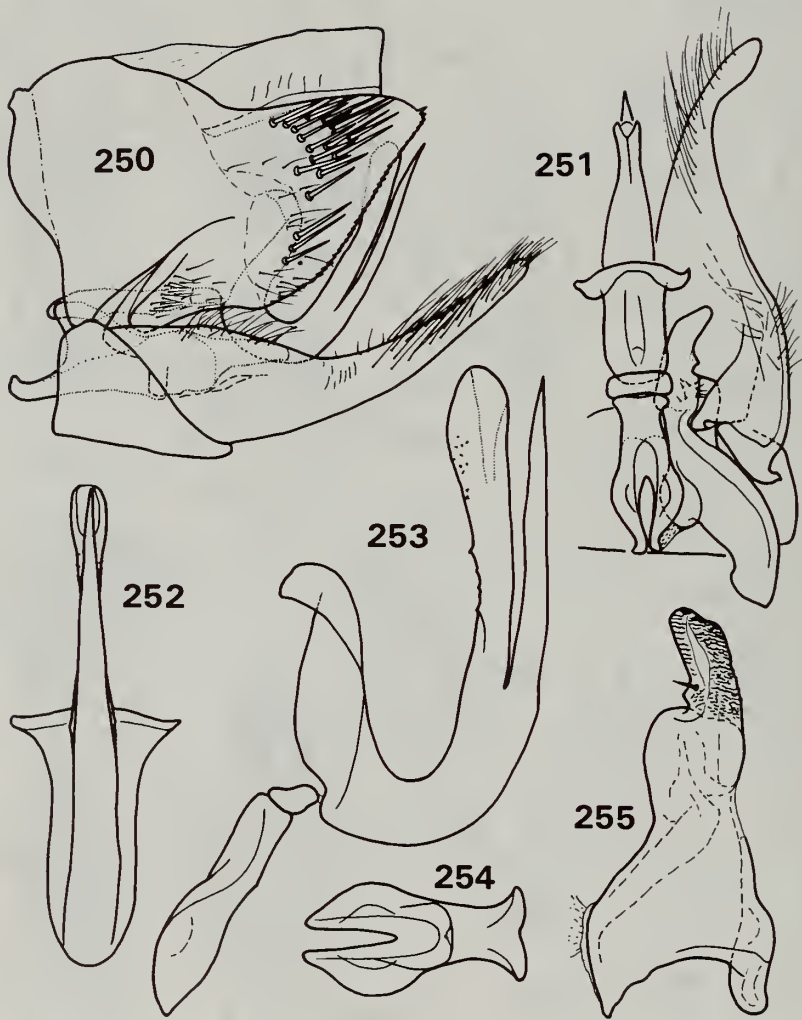
Figs 225–233 Male genitalia of *Isaca* species. 225–228, *I. sinuata*. 225, pygophore and tenth segment, left lateral view; 226, tenth segment, left lateral view; 227–228, aedeagus and apex of connective, ventral and left lateral view, respectively. 229–233, *I. falcata*. 229, pygophore and tenth segment, left lateral view; 230, tenth segment; 231, connective and base of aedeagus; 232–233, aedeagus, ventral and left lateral view respectively.



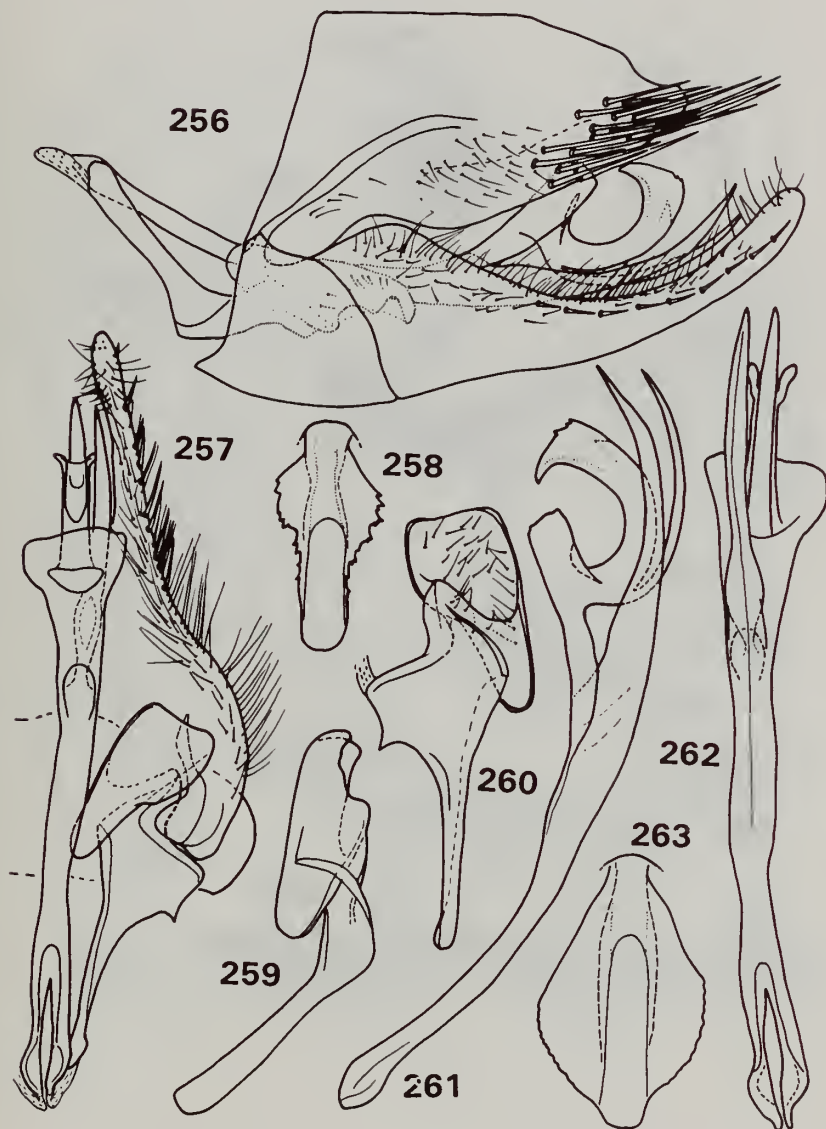
Figs 234–240 Male genitalia of *Roxasella losbanosa*. 234, genital capsule, left lateral view; 235, connective, ventral view; 236, valve, subgenital plate connective and style, dorsal view; 237, left style, ventral view; 238–240, aedeagus, left lateral, ventroposterior and posterior view, respectively.



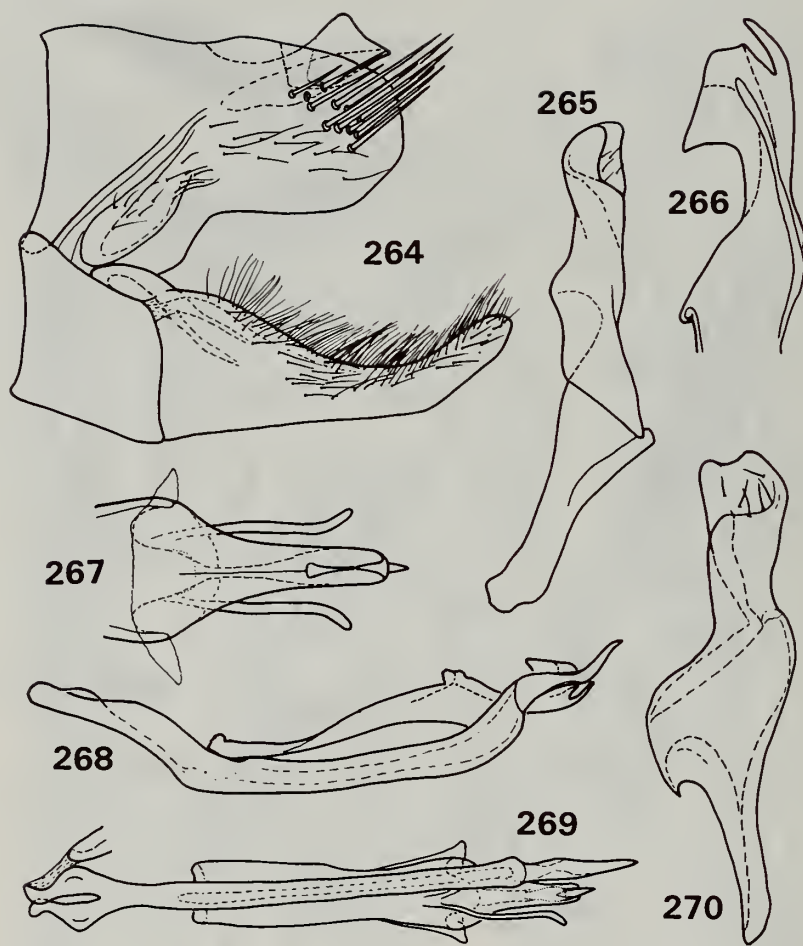
Figs 241–249 Male genitalia of *Roxasella* species. 241–245, *R. biarcuata*. 241, left style, ventral view; 242–243, aedeagus, left lateral and posterior view, respectively; 244, apex of aedeagus, posterior view; 245, connective, ventral view. 246–249, *R. philippina*. 246, left style, ventral view; 247–248, aedeagus left lateral and posterior view, respectively; 249, connective, ventral view.



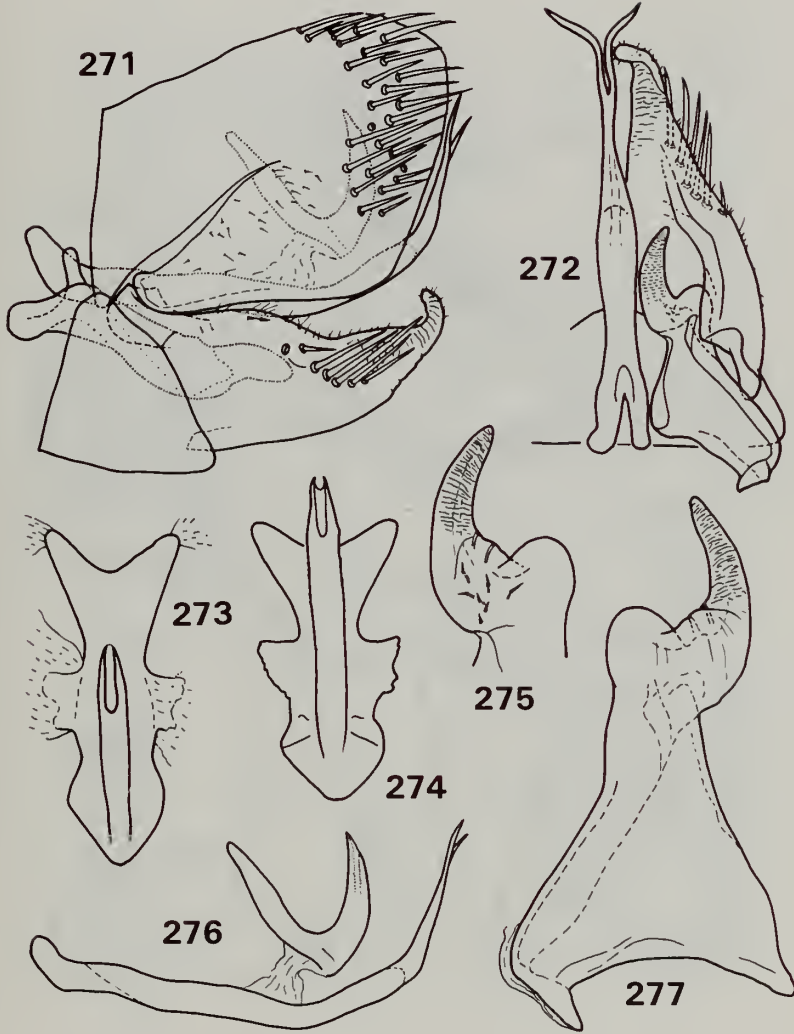
Figs 250–255 Male genitalia of *Roxasella laetisigna*. 250, genital capsule, left lateral view; 251, valve, subgenital plate, connective, aedeagus and style, dorsal view; 252, aedeagus, posterior view; 253, aedeagus and connective, left lateral view; 254, connective, ventral view; 255, left style, ventral view.



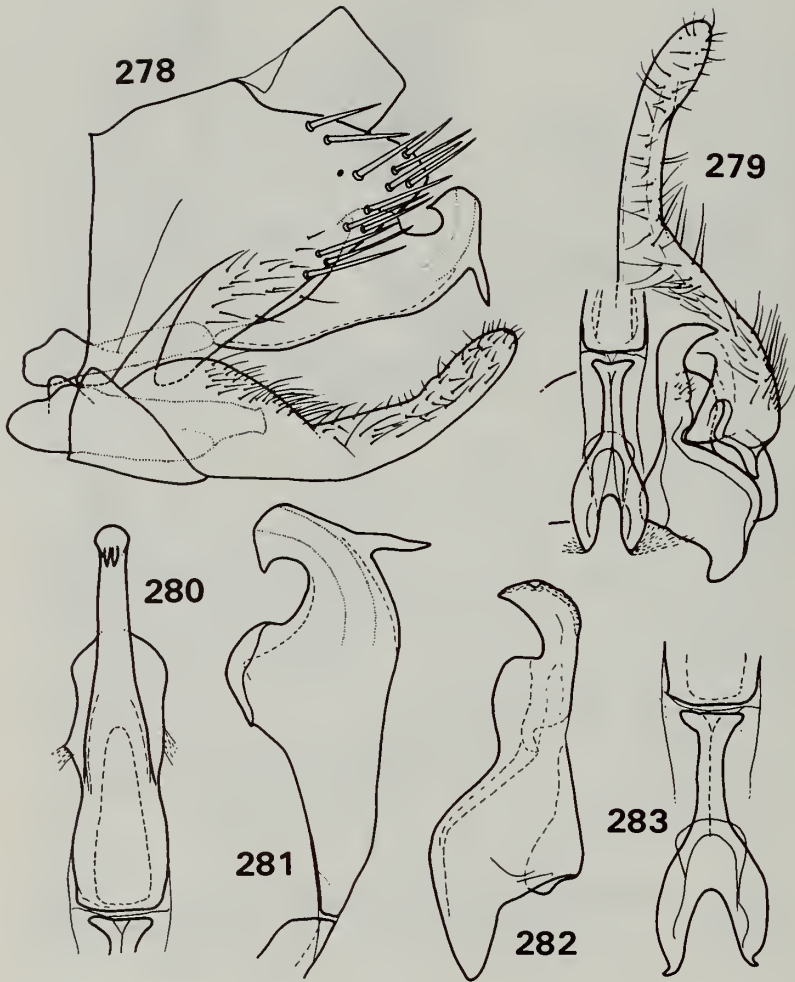
Figs 256–263 Male genitalia of *Omanella johnsoni*. 256, genital capsule, left lateral view; 257, valve, subgenital plate, connective, aedeagus and style, dorsal view; 258, apex of aedeagus, dorsoposterior view (Philippines); 259–260, left style; 261–262, aedeagus, left lateral and dorsal view respectively; 263, apex of aedeagus (Thailand), dorsoposterior view.



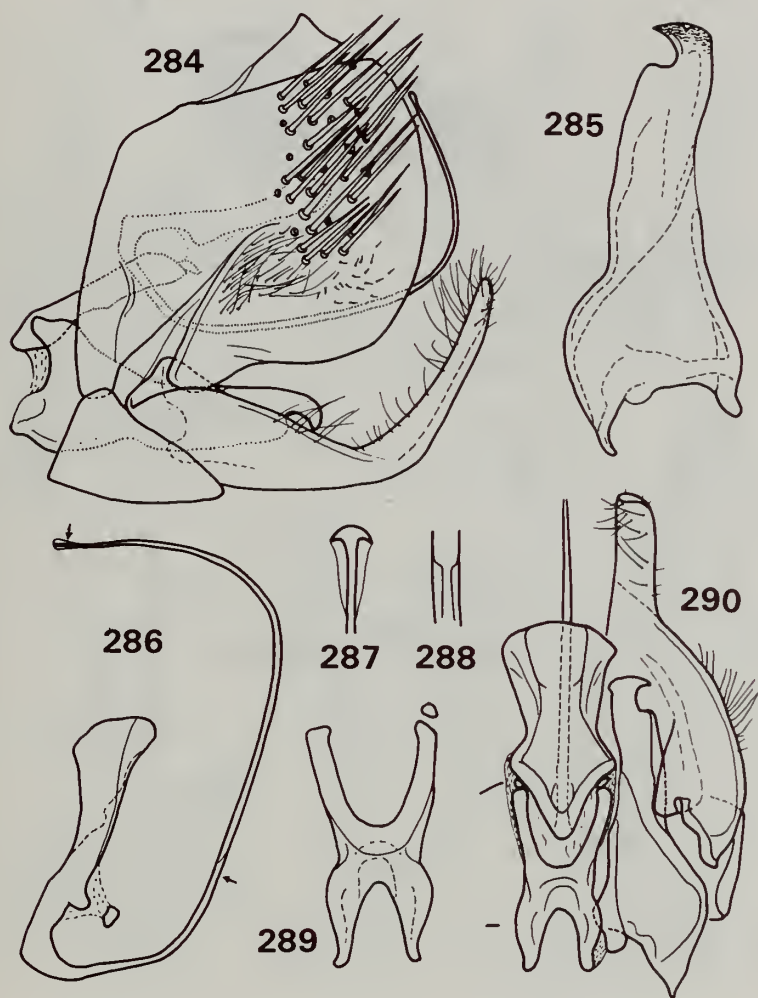
Figs 264–270 Male genitalia of *Omanella barberi*. 264, genital capsule, left lateral view; 265, left style; 266–267, aedeagus, left lateral and dorsal view, respectively; 268–269, aedeagus and connective, left lateral and ventral view, respectively; 270, left style, ventral view.



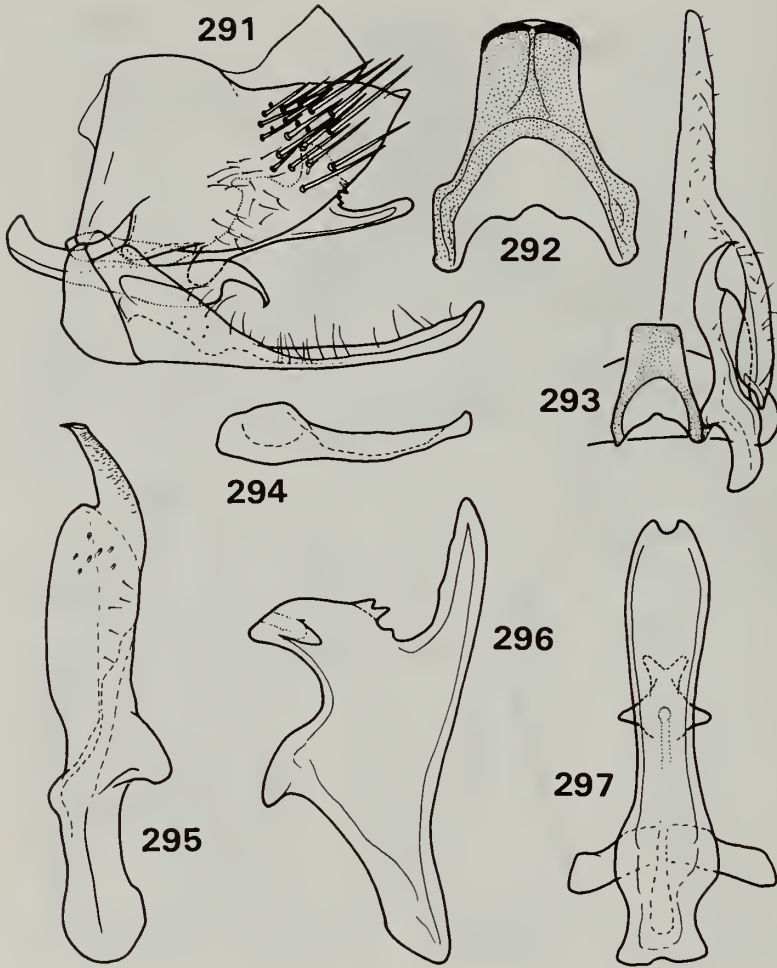
Figs 271–277 Male genitalia of *Tenompoella difficilis*. 271, genital capsule, left lateral view; 272, valve, subgenital plate, connective, aedeagus and style; 273–274, aedeagus, dorsoposterior and ventroposterior view, respectively; 275, apex of left style, dorsal view; 276, aedeagus and connective, left lateral view; 277, left style, ventral view.



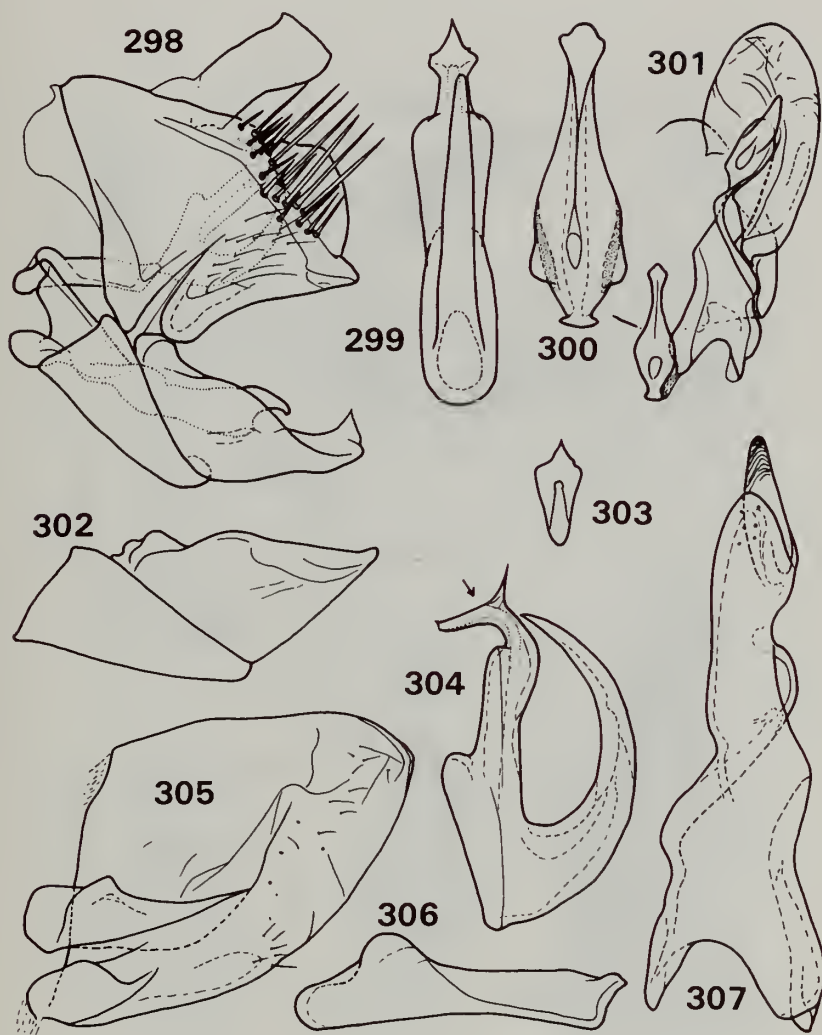
Figs 278–283 Male genitalia of *Waigara boninensis*. 278, genital capsule, left lateral view; 279, valve, subgenital plate, connective, base of aedeagus and style, dorsal view; 280–281, aedeagus and apex of connective, posterior and left lateral view, respectively; 282, left style, ventral view; 283, connective and base of aedeagus, ventral view.



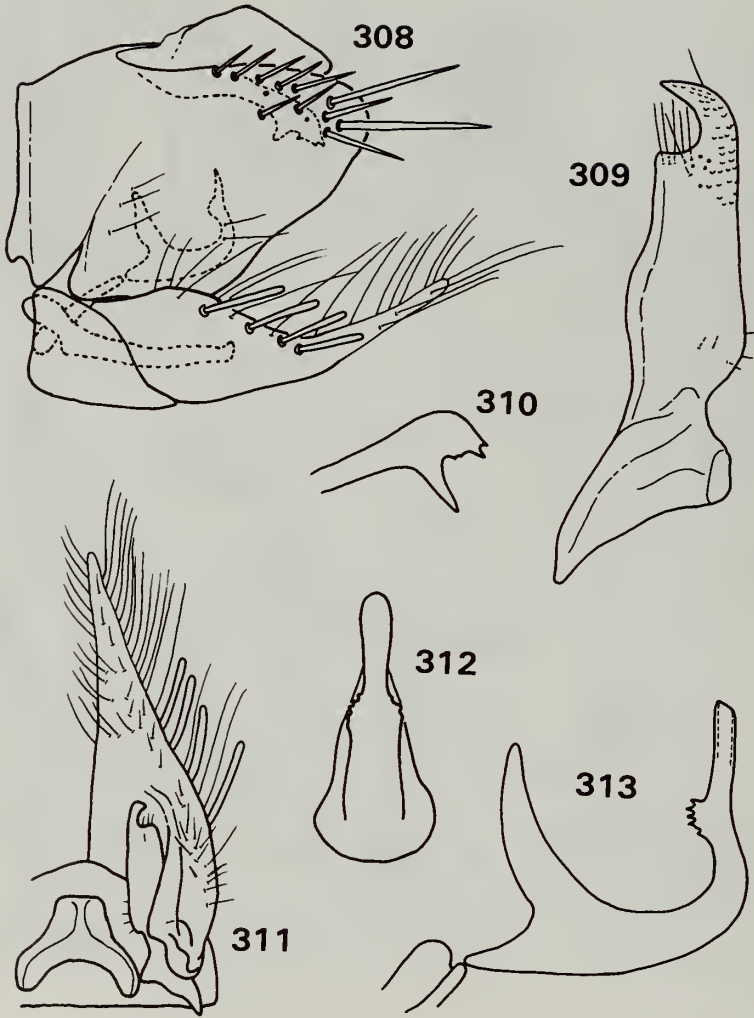
Figs 284–290 Male genitalia of *Welmaya nigri-linea*. 284, genital capsule, left lateral view; 285, left style, ventral view; 286, aedeagus, left lateral view; 287–288, detail of aedeagal shaft at apex and base, respectively, at positions and direction arrowed in Fig. 286; 289, connective, ventral view; 290, valve, subgenital plate, connective, aedeagus and style, dorsal view.



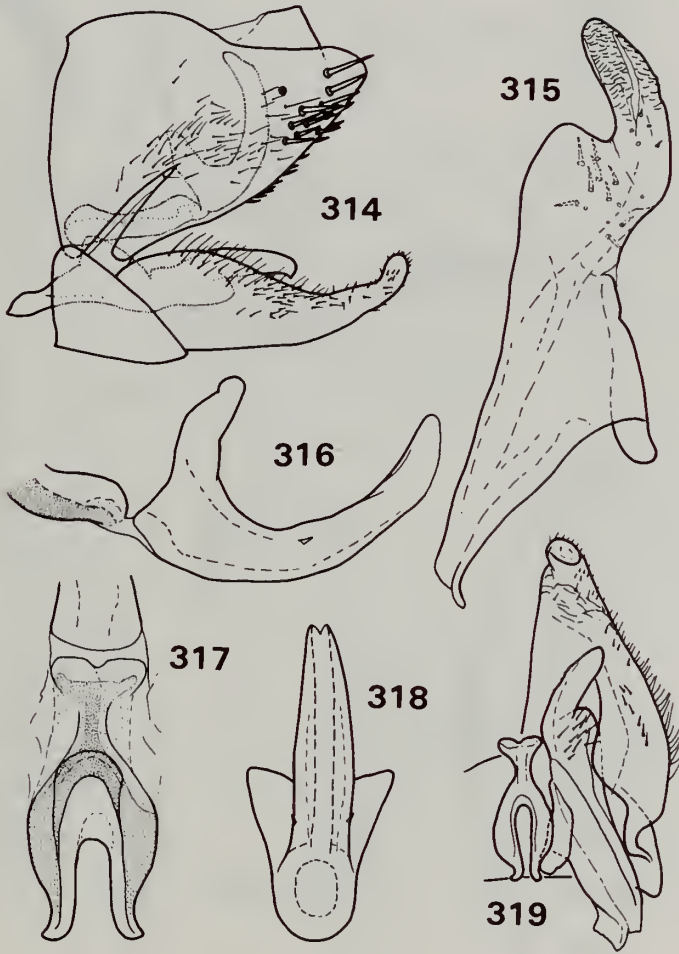
Figs 291–297 Male genitalia of *Tengatka basilana*. 291, genital capsule, left lateral view; 292, connective, ventral view; 293, valve, subgenital plate, connective and style, dorsal view; 294, connective, left lateral view; 295, left style, ventral view; 296–297, aedeagus, left lateral view and posterior view, respectively.



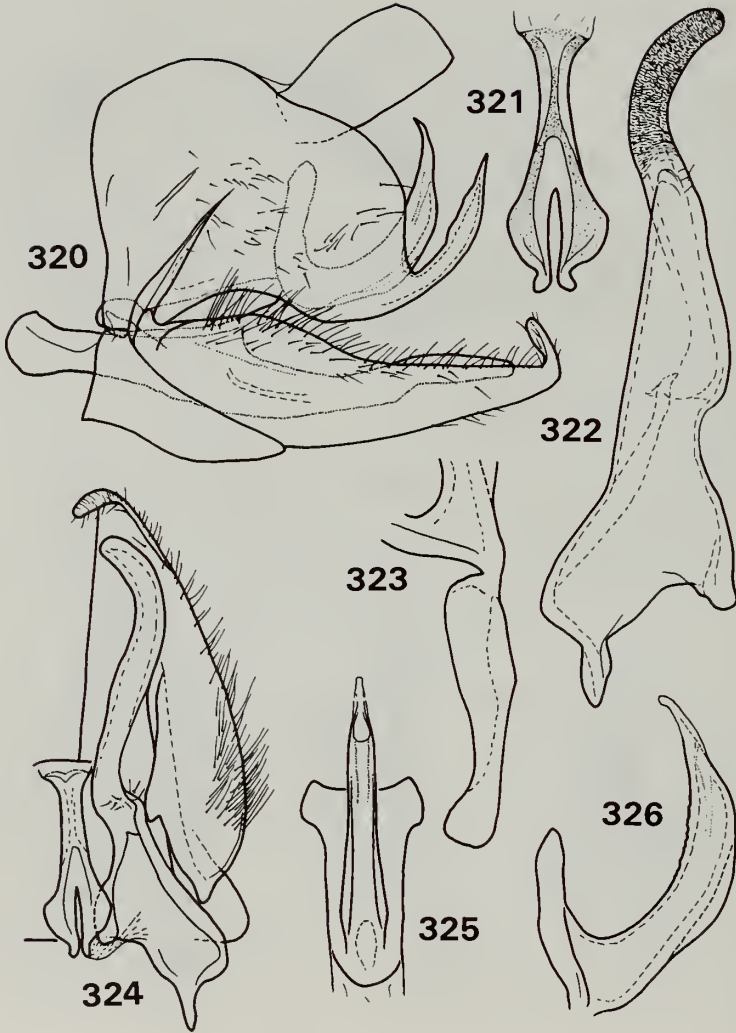
Figs 298–307 Male genitalia of *Sombakidia morisma*. 298, genital capsule, left lateral view; 299, aedeagus, posterior view; 300, connective, ventral view; 301, valve, subgenital plate, connective and style, dorsal view; 302, valve and subgenital plate, left lateral view, to show variation in shape of subgenital plate compared to fig. 298; 303, apex of aedeagus, viewed anteriorly in direction of arrow in Fig. 304; 304, aedeagus, left lateral view; 305, left subgenital plate, dorsal view; 306, connective, left lateral view; 307, left style, ventral view.



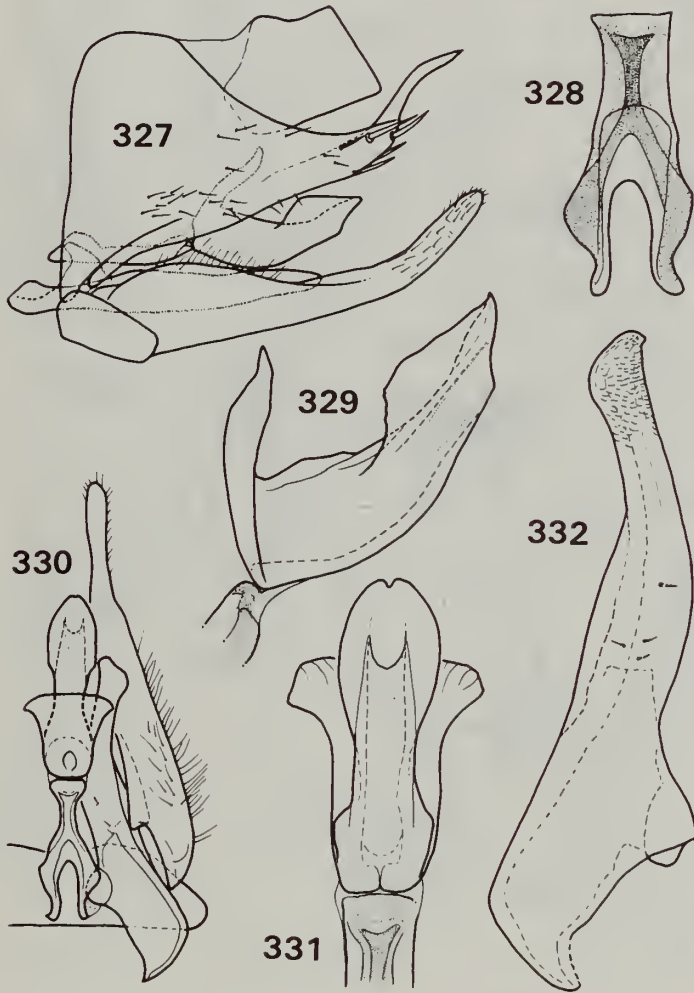
Figs 308–313 Male genitalia of *Nirvanguina placida*. 308, genital capsule, left lateral view; 309, left style, ventral view; 310, right pygophore process, medial view; 311, valve, subgenital plate, connective and style, dorsal view; 312, aedeagus, posterior view; 313, aedeagus and apex of connective, left lateral view.



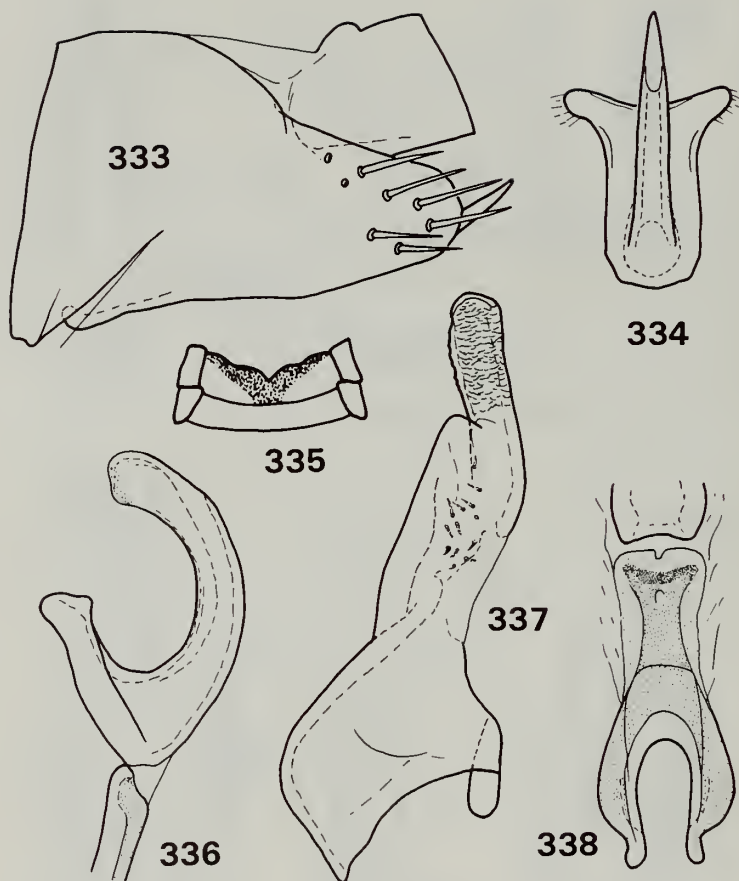
Figs 314–319 Male genitalia of *Drabescus modestus* (holotype), 314, genitale capsule, left lateral view; 315, left style, ventral view; 316, aedeagus and apex of connective, left lateral view; 317, connective and base of aedeagus, ventral view; 318, aedeagus, posterior view; 319, valve, subgenital plate, connective and style, dorsal view.



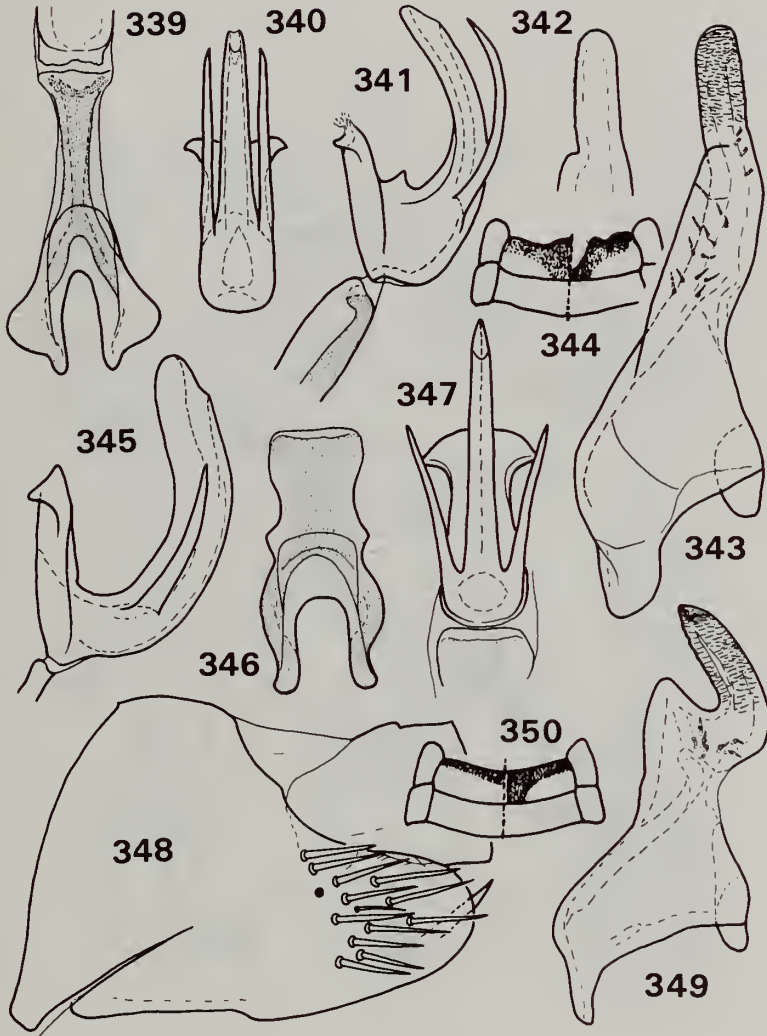
Figs 320–326 Male genitalia of *Drabescus ineffectus*. 320, genital capsule, left lateral view; 321, connective, ventral view; 322, left style, ventral view; 323, connective and base of aedeagus, left lateral view; 324, valve, subgenital plate, connective and style, dorsal view; 325–326, aedeagus, posterior and left lateral view, respectively.



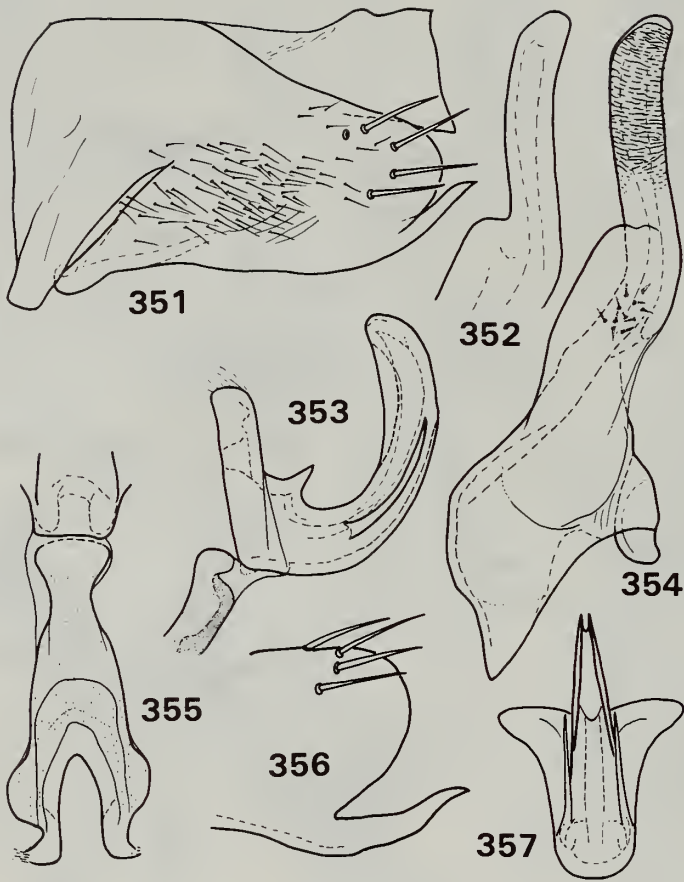
Figs 327–332 Male genitalia of *Drabescus nigrofacialis*. 327, genital capsule, left lateral view; 328, connective, ventral view; 329, aedeagus, left lateral view; 330, valve, subgenital plate, connective, aedeagus and style, dorsal view; 331, aedeagus and apex of connective, ventral view; 332, left style, ventral view.



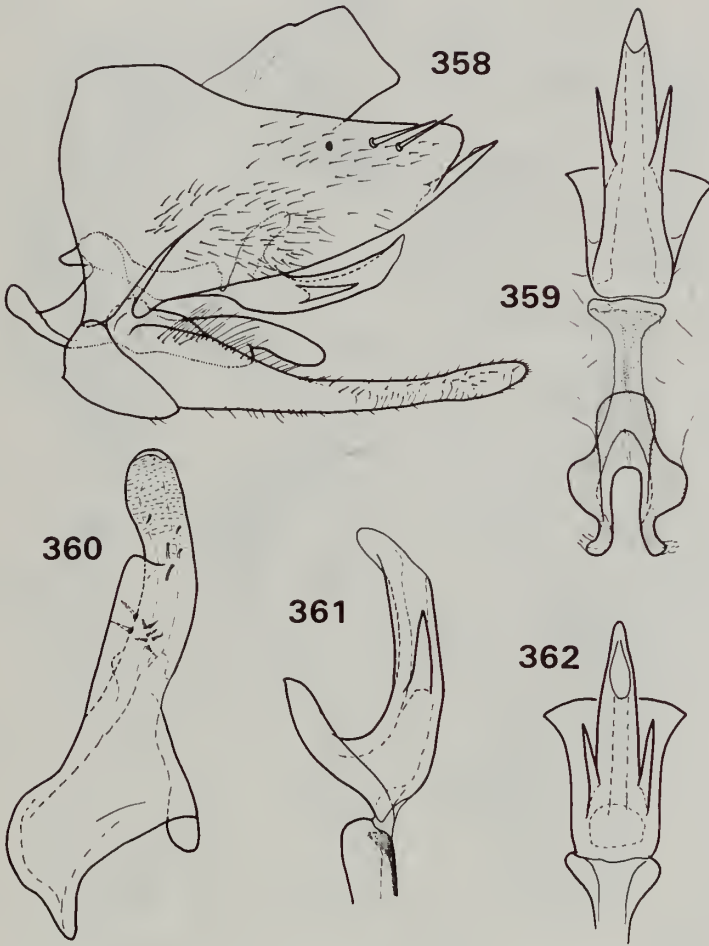
Figs 333–338 Male genitalia and female pregenital sternites of *Drabescus nigrifemoratus* (syntypes). 333, male pygophore and tenth segment, left lateral view; 334, aedeagus, posterior view; 335, female pregenital sternites; 336, aedeagus and apex of connective, left lateral view; 337, left style, ventral view; 338, connective and base of aedeagus, ventral view.



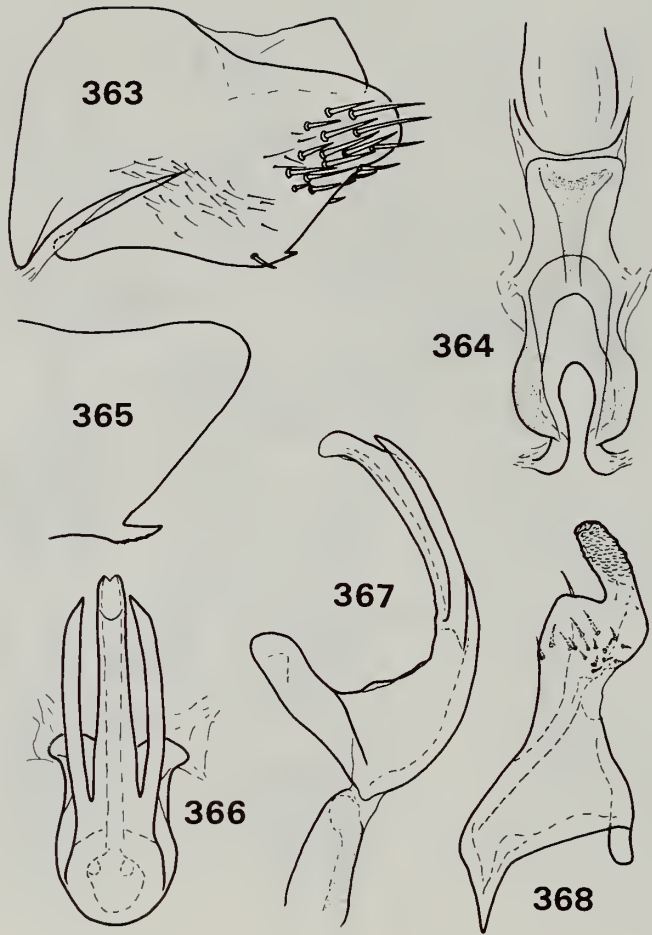
Figs 339–350 Male genitalia and female pregenital sternites of *Drabescus* species. 339–343, *D. vilbastei*; 339, connective and base of aedeagus, ventral view; 340, aedeagus, posterior view; 341, aedeagus and apex of connective, left lateral view; 342, left style apex; 343, left style, ventral view. 344, *Drabescus* spp. female pregenital sternites (see *D. vilbastei* remarks); 345–349, *D. nitobei*, 345, aedeagus and apex of connective, left lateral view; 346, connective, ventral view; 347, aedeagus and apex of connective, ventral view; 348, male pygophore and tenth segment, left lateral view; 349, left style, ventral view; 350, *D. nitobei*? (see *Drabescus* remarks) female pregenital sternites showing variation in pigment between different specimens.



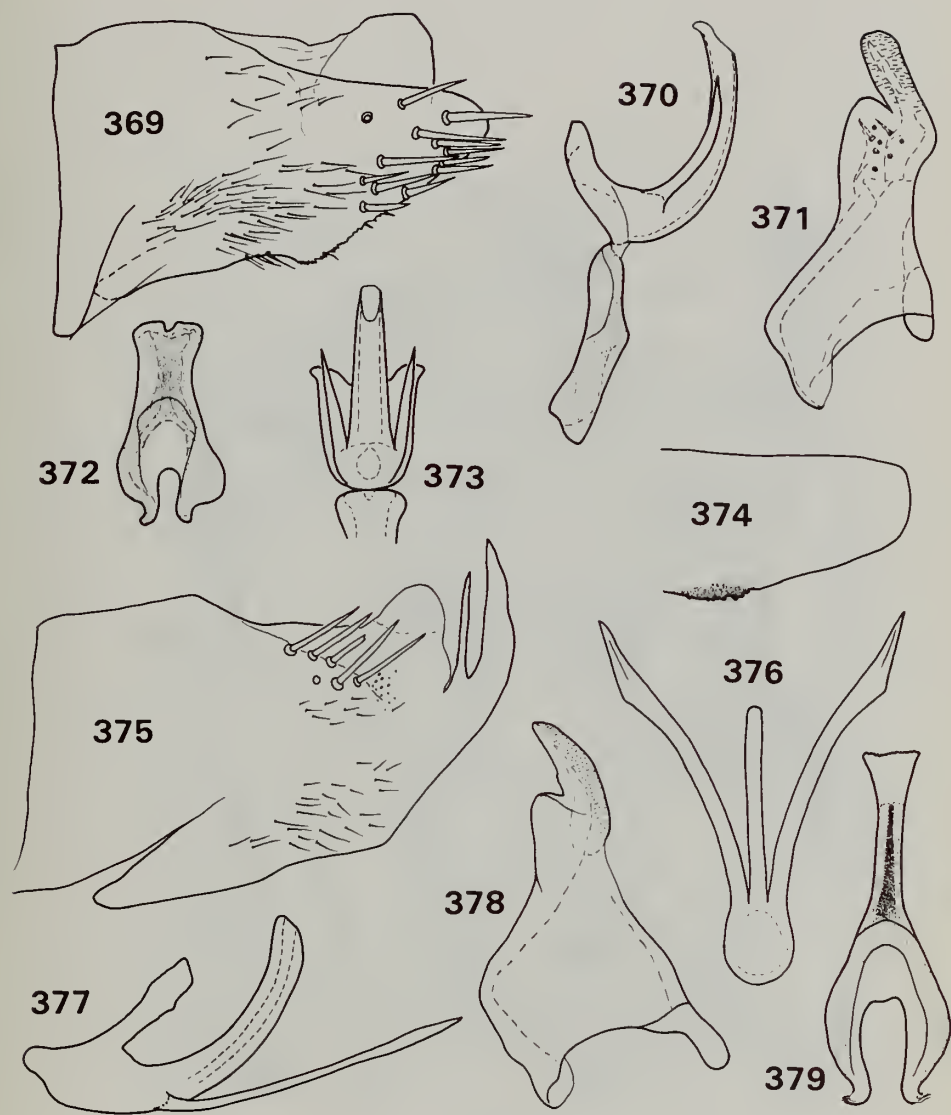
Figs 351–357 Male genitalia of *Drabescus pallidus*. 351, pygophore and tenth segment, left lateral view; 352, apex of style; 353, aedeagus and apex of connective, left lateral view; 354, left style, ventral view; 355, connective and base of aedeagus, ventral view; 356, left pygophore lobe, left lateral view; 357, aedeagus, posterior view.



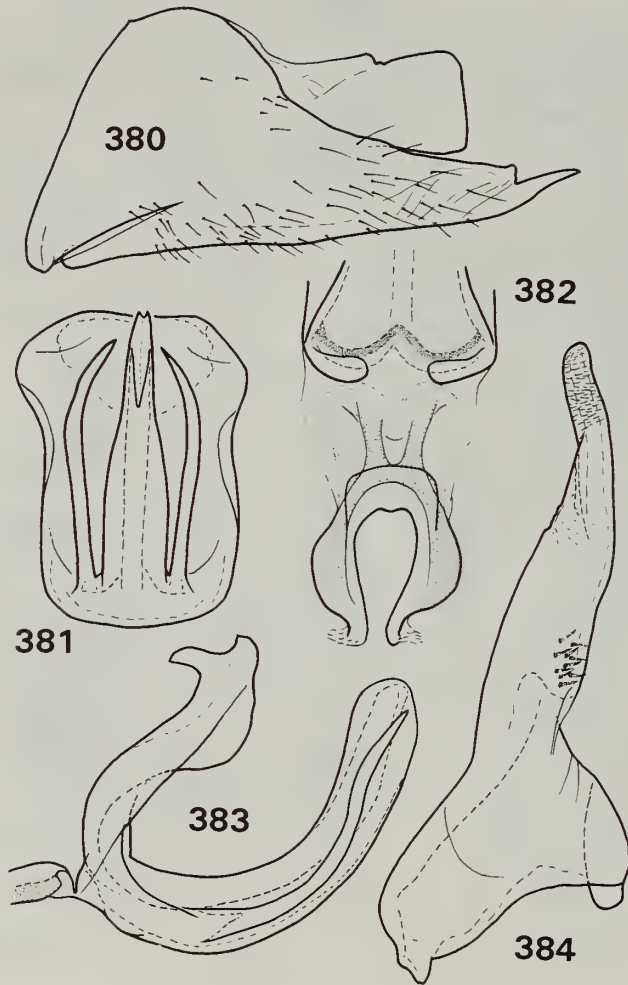
Figs 358–362 Male genitalia of *Drabescus conspicuus* (lectotype). 358, genital capsule; 359, aedeagus and connective, ventral view; 360, left style, ventral view; 361, aedeagus and apex of connective, left lateral view; 362, aedeagus and apex of connective, ventral view.



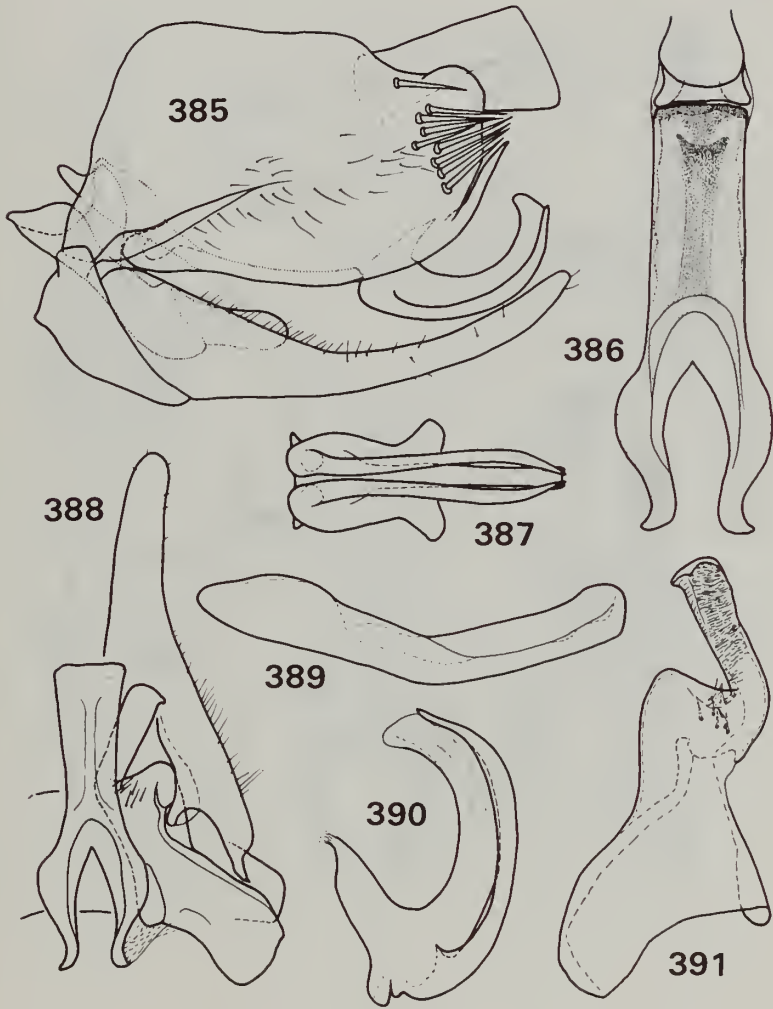
Figs 363–368 Male genitalia of *Drabescus samoanus*. 363, pygophore and tenth segment, left lateral view; 364, connective and base of aedeagus, ventral view; 365, pygophore lobe, left lateral view; 366, aedeagus, ventral view; 367, aedeagus and apex of connective, left lateral view; 368, left style, ventral view.



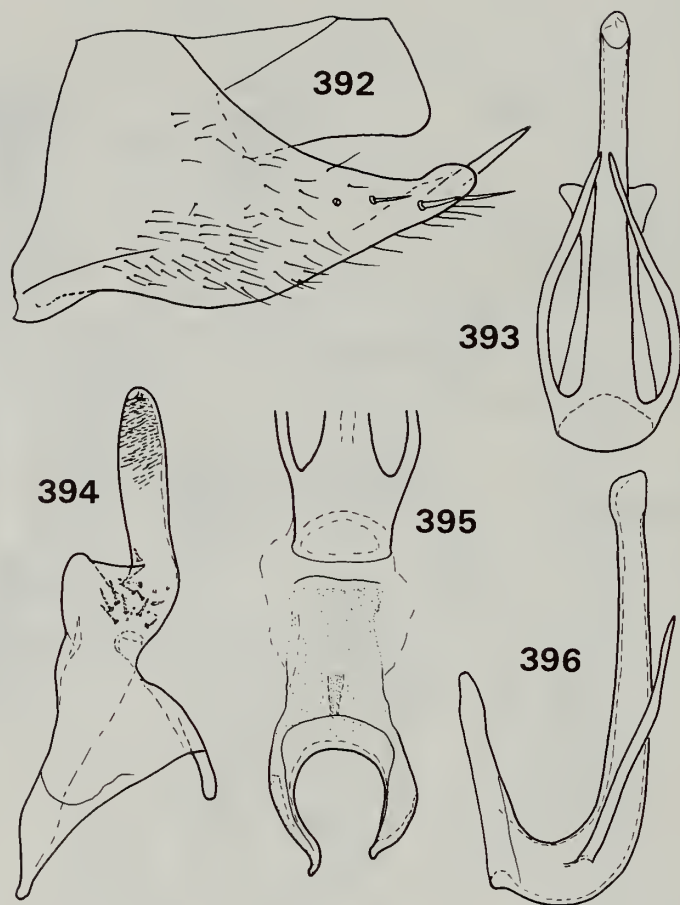
Figs 369–379 Male genitalia of *Drabescus* species. 369–374, *D. flavicollis* (holotype). 369, pygophore and tenth segment, left lateral view; 370, aedeagus and connective, left lateral view; 371, left style, ventral view; 372, connective, ventral view; 373, aedeagus and apex of connective, ventral view; 374, pygophore lobe, left ventral view; 375–379, *D. formosanus*. 375, pygophore, left lateral view; 376–377, aedeagus, posterior and left lateral view; 378, left style, ventral view; 379, connective, ventral view.



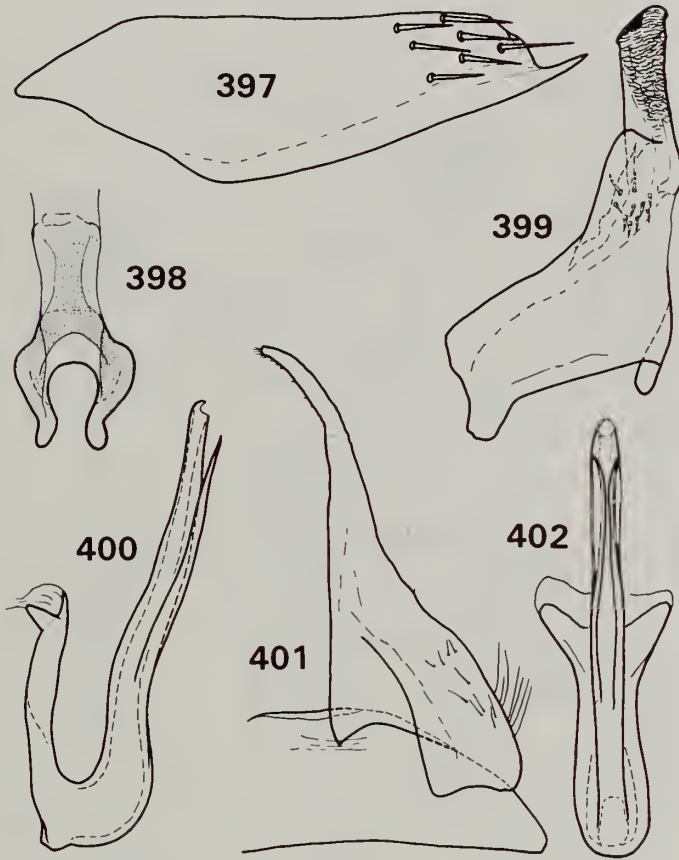
Figs 380–384 Male genitalia of *Drabescus angulatus*. 380, pygophore and tenth segment, left lateral view; 381, aedeagus, posterior view; 382, connective and base of aedeagus, ventral view; 383, aedeagus left lateral view; 384, left style, ventral view.



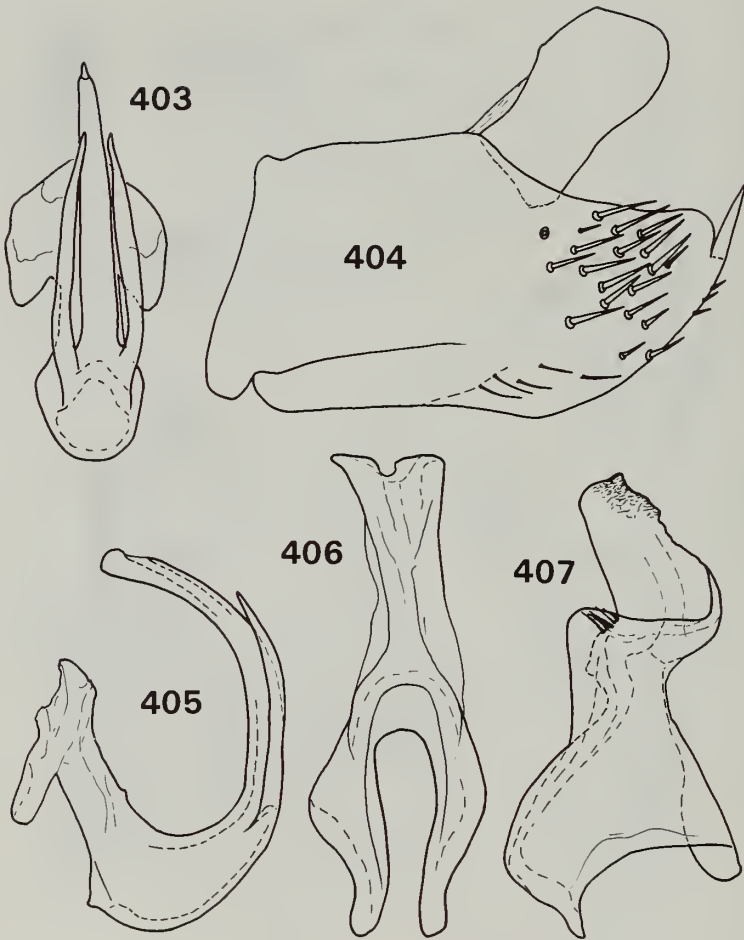
Figs 385–391 Male genitalia of *Drabescus remotus*. 385, genital capsule, left lateral view; 386, connective and base of aedeagus, ventral view; 387, aedeagus, posterior view; 388, valve, subgenital plate, connective and style, dorsal view; 389, connective, left lateral view; 390, aedeagus, left lateral view; 391, left style, ventral view.



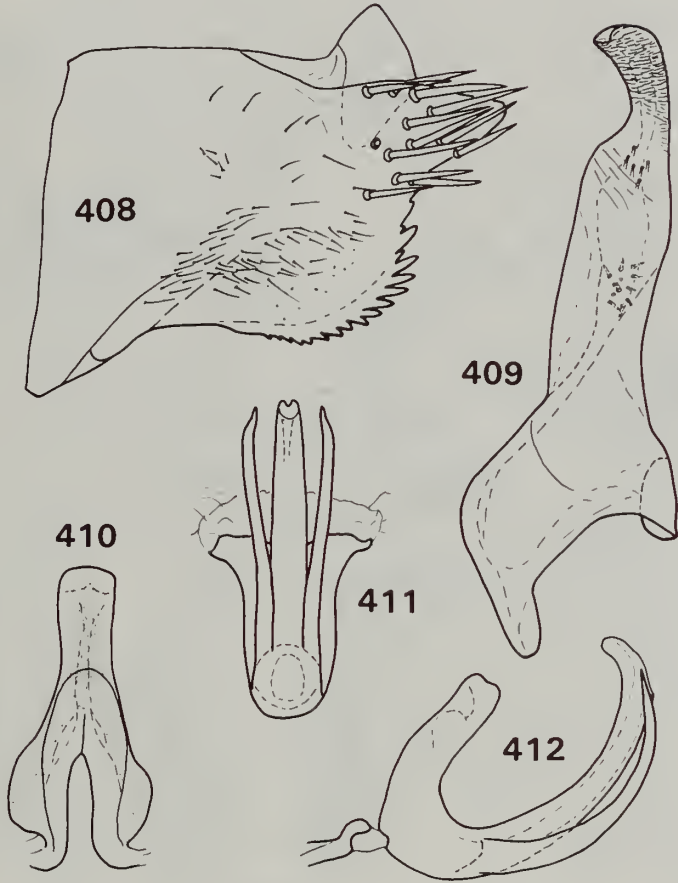
Figs 392–396 Male genitalia of *Drabescus shillongensis*. 392, pygophore and tenth segment, left lateral view; 393, aedeagus, posterior view; 394, left style, ventral view; 395, connective and base of aedeagus, ventral view; 396, aedeagus, left lateral view. Figs 392, 394–395, Yunnan specimen, Figs 393, 396, holotype.



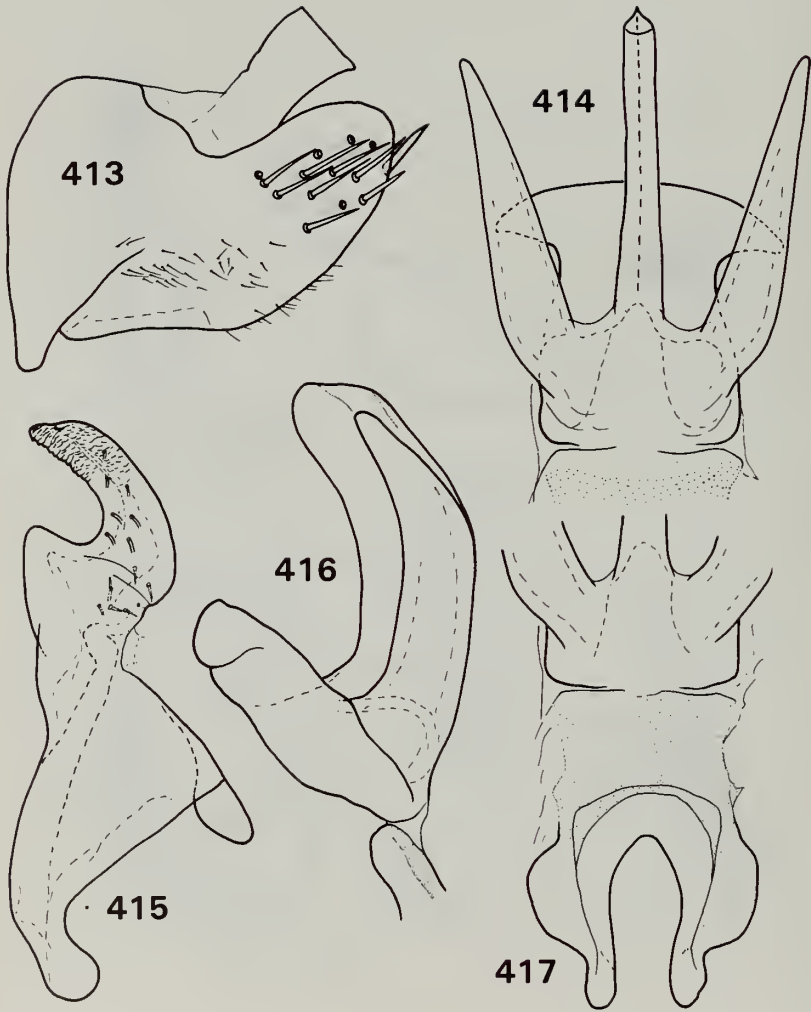
Figs 397–402 *Drabescus testaceus* (holotype). 397, pygophore, left lateral view; 398, connective, ventral view; left style, ventral view; 399, left style ventral view, 400, aedeagus, left lateral view; 401, valve and subgenital plate dorsal view; 402, aedeagus, posterior view.



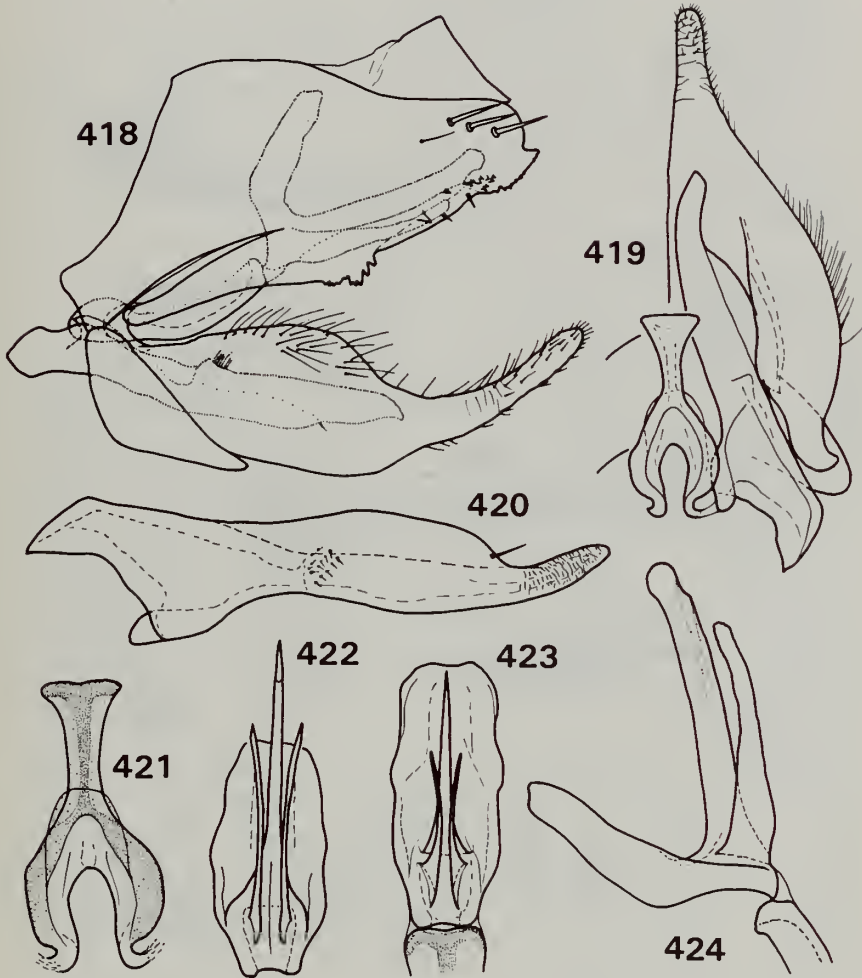
Figs 403–407 Male genitalia of *Drabescus kaindii* (holotype). 403, aedeagus, posterior view; 404, pygophore and tenth segment, left lateral view; 405, aedeagus, left lateral view; 406, connective, ventral view; 407, left style, ventral view.



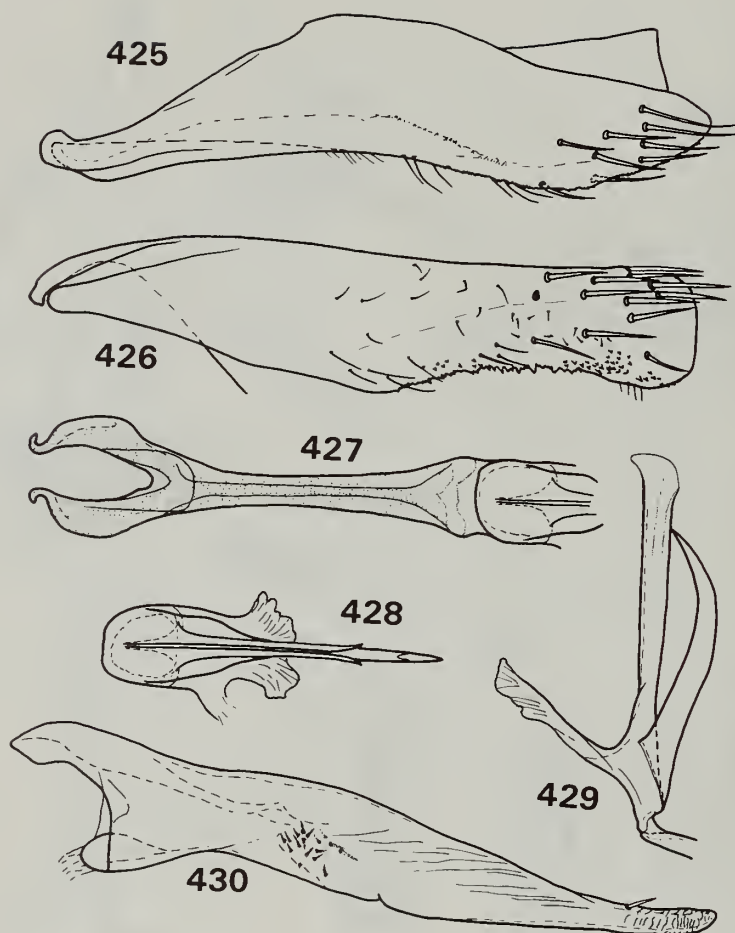
Figs 408–412 Male genitalia of *Drabescus vitreus* (Lectotype). 408, pygophore and tenth segment, left lateral view; 409, left style, ventral view; 410, connective, ventral view; 411–412, aedeagus, posterior and left lateral view, respectively. Subgenital plate as in *remotus*, fig. 388.



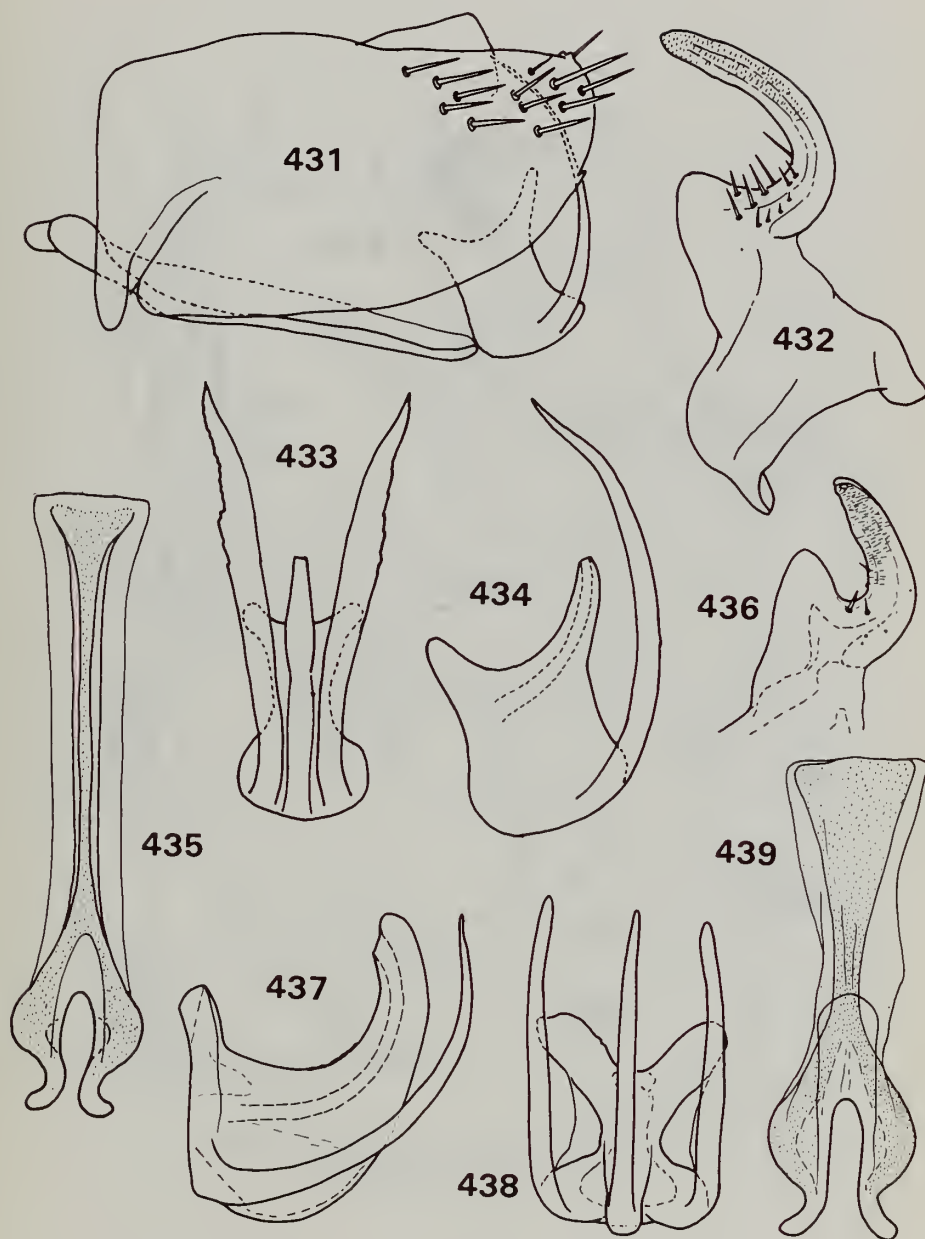
Figs 413–417 Male genitalia of *Drabescus nervosopunctatus*. 413, pygophore and tenth segment, left lateral view; 414, aedeagus and apex of connective, posterior view; 415, left style, ventral view; 416, aedeagus, left lateral view; 417, connective and base of aedeagus, ventral view.



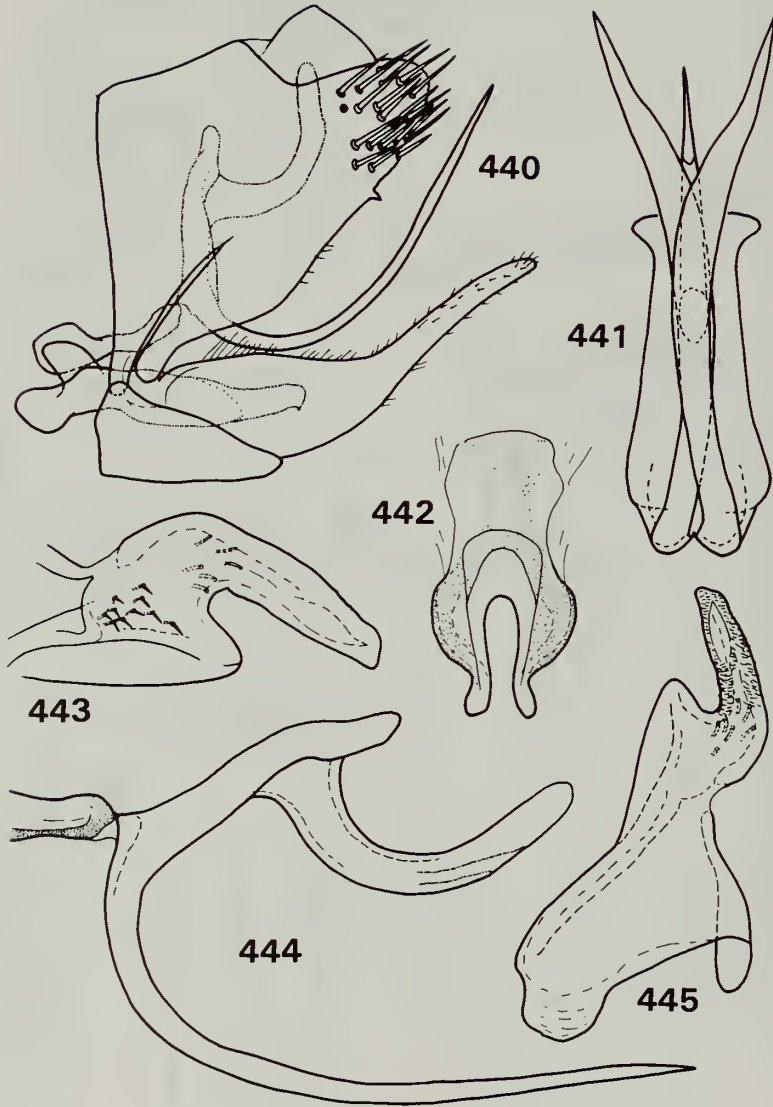
Figs 418–424 Male genitalia of *Drabescus ogumae*. 418, genital capsule, left lateral view; 419, valve, subgenital plate, connective and style, dorsal view; 420, left style, ventral view; 421, connective, ventral view; 422, aedeagus, posterior view, 423–424 aedeagus ventral and left lateral view, respectively.



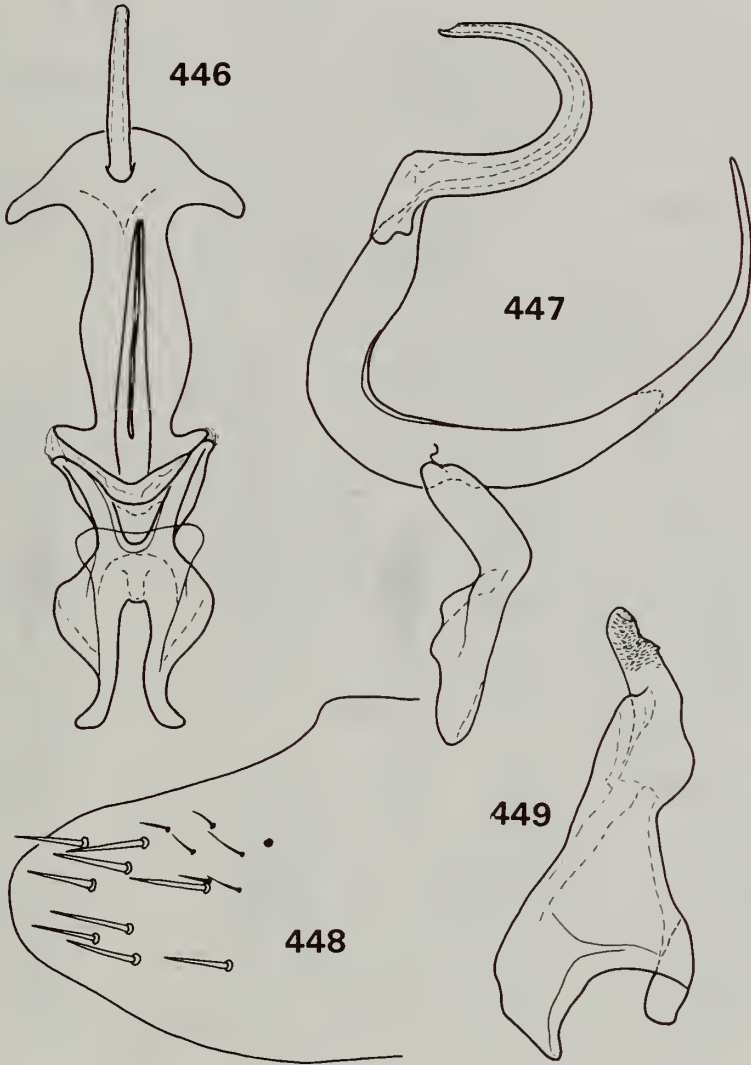
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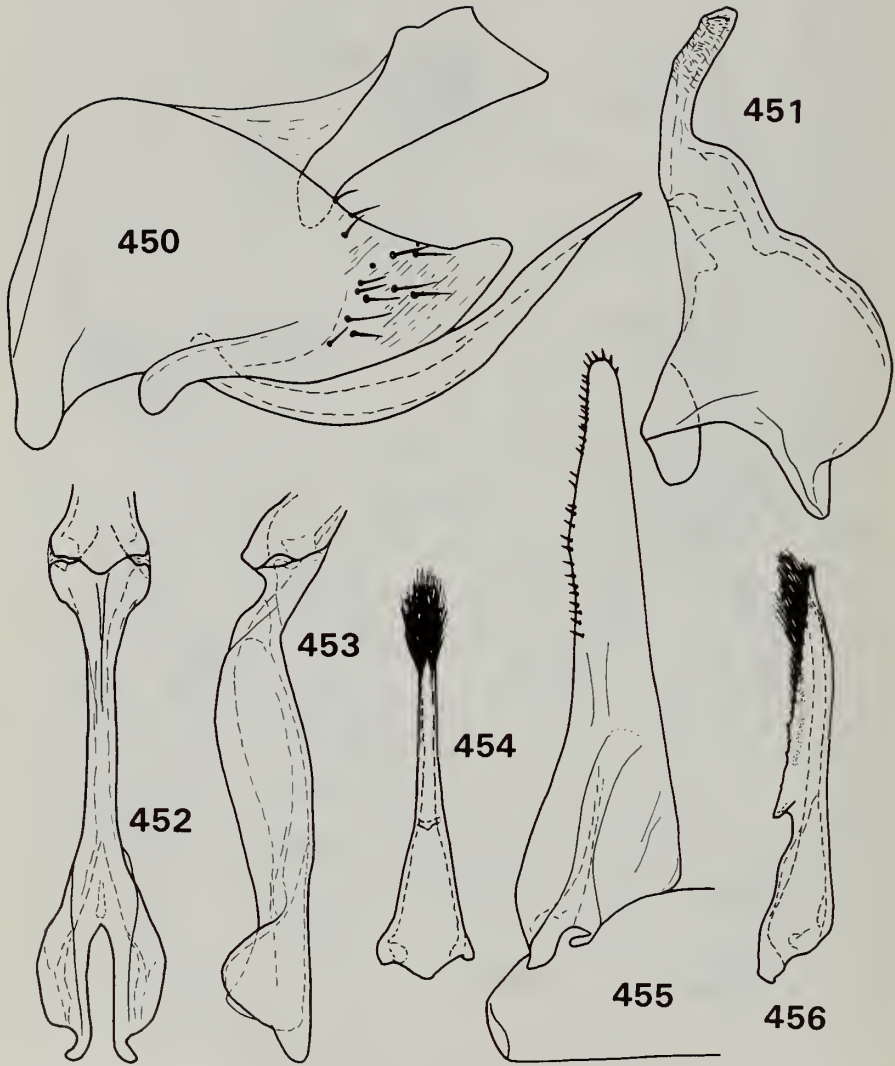
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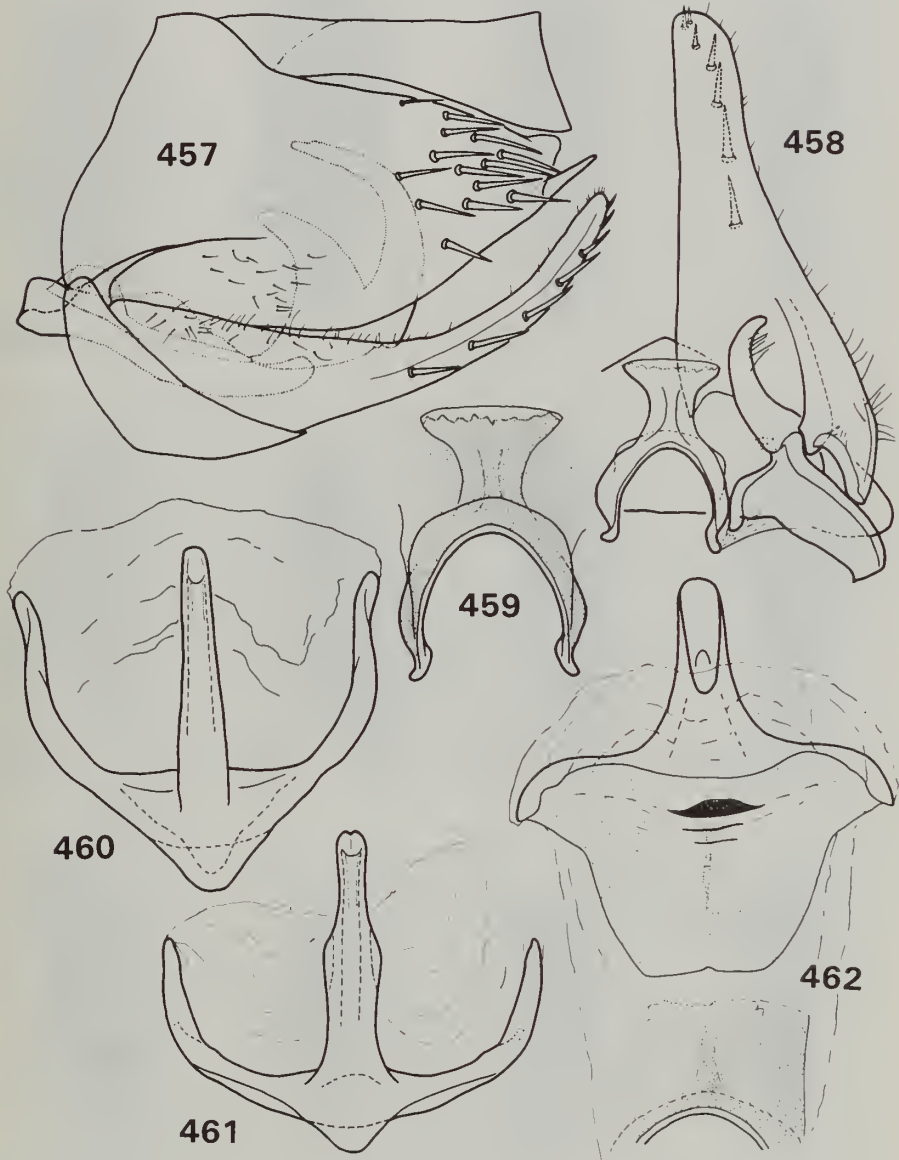
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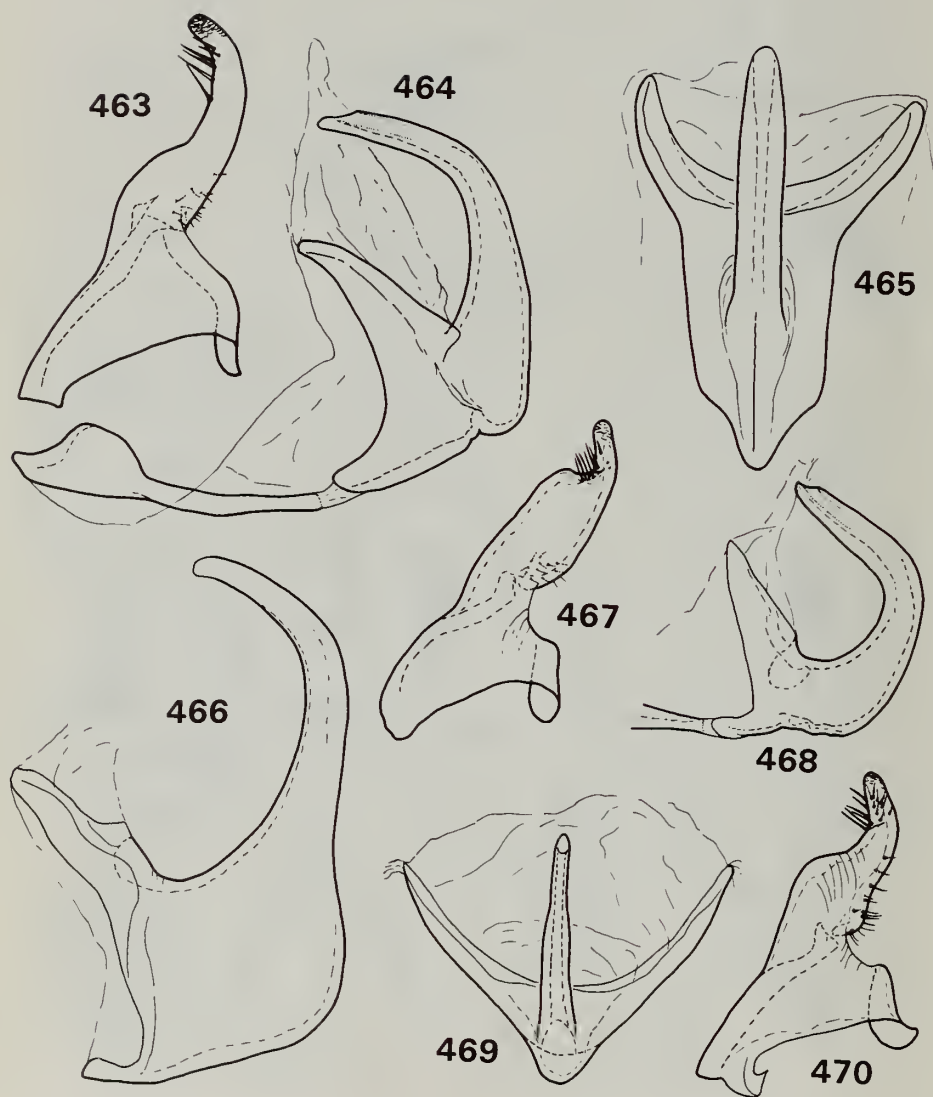
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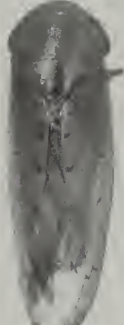
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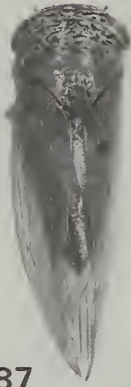
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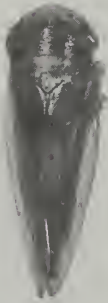
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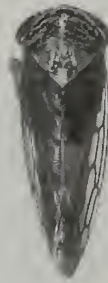
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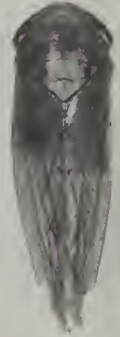
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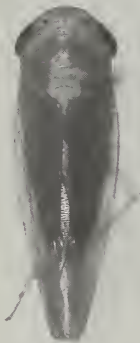
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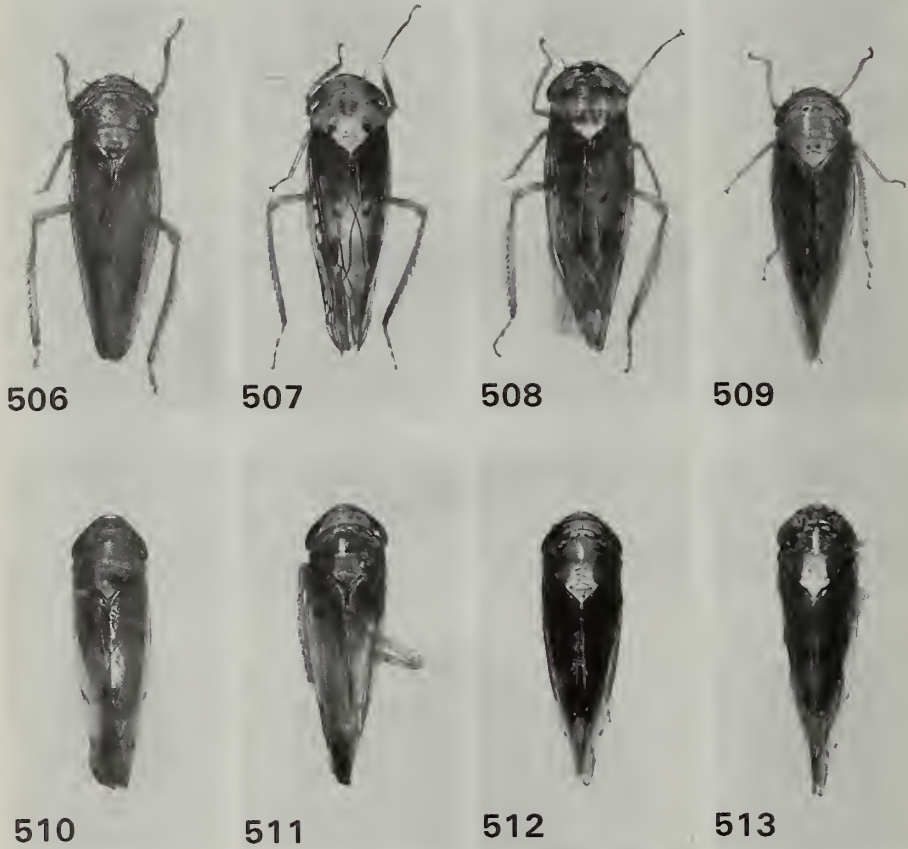


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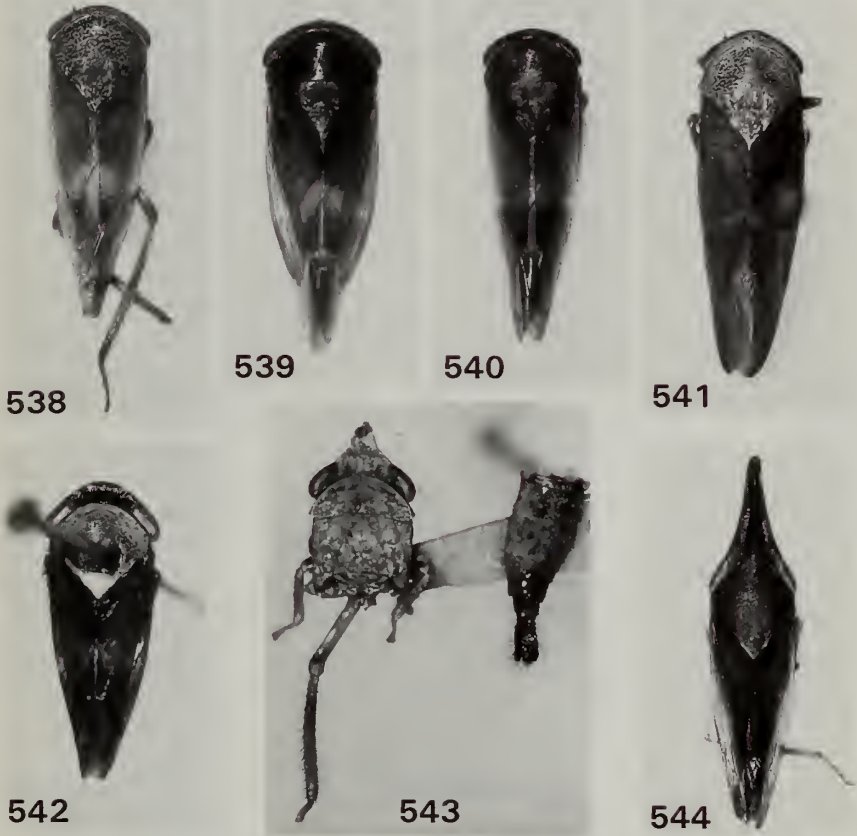
Figs 506–513 Paraboloponini species. 506, *Carvaka ochrophara* (India, Kodaikanal, BMNH); 507, *C. picturata* (syntype, BMNH); 508, *C. thoracica* (syntype, BMNH); 509, *C. modesta* (syntype, BMNH); 510, *C. formosana* (lectotype); 511, *C. contempta* (Australia, New South Wales, BMNH); 512, *Tengatka basilana* (Basilan I., BMNH); 513, *Sombakidia morisma* (allotype NMNH).



Figs 514–525 *Drabescus* species. 514, *D. remotus* (Philippines, Baguio, BMNH); 515, *D. extensus* (holotype); 516, *D. politus* (holotype); 517, *D. kempi* (India, Karnataka, UASB); 518, *D. fuscoviridis* (holotype); 519, *D. brunneus* (paratype); 520, *D. breviolus* (?syntype); 521, *D. piceus* (allotype); 522, *D. vitreus* (lectotype); 523, *D. sirunkensis* (holotype); 524, *D. nigrofascialis* (lectotype); 525, *D. angulatus* (Nepal, BMNH).



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Figs 538–544 Drabesciini species. 538. *Drabescus nitobei* (lectotype of *D. elongatus*); 539, *D. nitens*? (see *Drabescus* remarks), Philippines, BMNH; 540, *D. formosanus* (lectotype); 541, *D. ineffectus* (China, BMNH); 542, *D. samoanus* (paratype, BMNH); 543, nymph of previous species (BMNH); 544, Drabesciini indet. species.

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